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INCIDENCE OF NEUROPSYCHIATRIC DISORDERS IN THE UNITED STATES ARMY IN WORLD WAR II

(Preliminary Report)

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The following data represent basic figures from which an overall picture of the incidence of neuropsychiatric disorders in the United States Army during World War II may be obtained. Except as otherwise noted, the figures were taken from tabulations compiled by the Medical Statistics Division of the Surgeon General's Office. They are approximate figures and may differ somewhat from the final data which are not yet available.

Rejections for Military Service during the period 1 January 1942 through 30 June 1945, there were slightly less than 1,750,000 men rejected for military service (Army, Navy, Marine Corps, etc.) because of neuropsychiatric disorders. (1) This represented 12% of all men examined and 37% of the men rejected for all causes. A complete diagnostic breakdown of these rejections is not yet available, however during 1944 the neuropsychiatric rejections at armed forces induction stations and local boards were composed of the following main diagnostic groups:

	% of total neuropsychiatric rejections
Psychoneurosis	31
Psychosis	1
Psychopathic personality	21
Mental deficiency	33
Other psychiatric	6
Neurological disease (excluding epilepsy and neurosyphilis)	6
Epilepsy	2
Total neuropsychiatric disorders.	100

In interpreting these figures it is important to remember that the time available for the induction neuropsychiatric examination of necessity was relatively brief in a large proportion of the cases. Furthermore, it was more important to reach a decision as to the individuals' fitness for service than to establish a particular neuropsychiatric diagnosis. For these reasons alone, attempts to estimate the incidence of a particular disorder, psychoneurosis, for example, in the population at large, on the basis of these figures should be made with caution. It should also be realized that during the greater part of the war, fitness for service meant fitness for full combat duty in the front lines. A significant proportion of the men rejected for neuropsychiatric reasons would have been capable of rendering service in noncombat jobs had such jobs been available. It is evident that a certain proportion of the rejections were for neuropsychiatric conditions which would not be of significance in civilian life.

Hospital Admissions.—During the period 1 January 1942 through 30 June 1945, in the total U. S. Army there were approximately 1,000,000 admissions to hospitals [2] for neuropsychiatric disorders. This represented a rate of 45 admissions per 1,000 troops per year and constituted 6% of admissions for all causes. The actual number of men admitted for neuropsychiatric disorders during this period is less than the 1,000,000 admissions since a certain number of men were admitted more than once.

Of the 1,000,000 admissions for neuropsychiatric disorders, including overseas and U. S. cases, only a small proportion would have required hospitalization in civilian life. Less than 7% of these admissions were for psychoses, 64% were diagnosed psychoneurosis and the remaining 29% represented psychopathic personality, mental deficiency,

[1] From the Neuropsychiatry Consultants Division, Surgeon General's Office, U. S. Army.

[2] Includes a small proportion of cases which were admitted to "quarters," *e.g.*, excused from duty and allowed to remain in their living quarters while undergoing treatment.

other psychiatric disorders or neurological diseases. Because of the requirements of military operations if a man has a medical condition which renders him even temporarily unable to perform duty in his current assignment, there is frequently no alternative but to take him off his job and admit him to a hospital. For this reason, hospitalization in the military service has a different significance than it does in civilian life. In a large proportion of cases it indicates not that the individual is sick enough to require hospital care in a civilian sense, but merely that he is considered unable to continue in his particular assignment. Of the 1,000,000 neuropsychiatric cases, the 7% which represent the psychoses undoubtedly would have required hospitalization according to civilian medical standards. Of the 64% representing psychoneurosis and the remaining 29% representing other neuropsychiatric disorders, practically none would have required admission to the conventional civilian mental hospital and only a small proportion would have required hospitalization of any type. The vast majority represent a type of case which in civilian life is treated on an outpatient basis or in the (relatively few) small private sanatoria for the nonpsychotic, or which although sick does not seek psychiatric or even medical care at all. In respect to the latter point, it must be borne in mind that in the Army admission to hospital is frequently not a matter of personal choice on the part of the soldier, but occurs automatically if he is noneffective at his job.

It is also a mistake to assume that the 1,000,000 neuropsychiatric admissions represent men who had "broken down" in the service. A significant proportion were cases hospitalized as a result of the constant screening process carried out throughout the Army, particularly during training. The men hospitalized in this process were frequently no sicker than when they came into the Army; it had merely become evident that their condition rendered them unsuitable for their particular job and they required reassignment or return to civilian life. Even a certain proportion of the so-called combat cases fall into this category; men who completed their training but quickly demonstrated their lack of stability upon being exposed to the stress of enemy fire and promptly returned to their usual condition upon being removed to base areas.

The proportion of 1,000,000 neuropsychiatric admissions which occurred as a direct result of combat is not yet known, but according to present data approximately 40% (of the neuropsychiatric admissions) were among troops overseas and 60% among troops on duty within the continental limits of the United States, including those in training as well as the men engaged in actual duties such as supply, ordnance, etc. However, although the actual *number* of neuropsychiatric admissions overseas was less than the number in the United States, the *rate* of psychiatric admissions in overseas combat theaters was distinctly higher than the rate in the United States and of course a great deal higher among troops in front line combat. For example, infantry divisions, while in heavy combat, frequently suffered neuropsychiatric admissions rates of 250 admissions per 1,000 troops per year, whereas the neuropsychiatric admission rate for troops in the United States was approximately 50 admissions per 1,000 troops per year (during the period 1 January 1942 through 30 June 1945). This apparent discrepancy is due to the fact that a relatively small proportion, probably less than 7%, of the Army was engaged in front line combat at any one time. Therefore, although the incidence of neuropsychiatric disorders was many times higher in combat than in the United States, the relatively small number of troops in combat kept the total number of combat neuropsychiatric cases beneath that of base areas or United States cases.

Noneffective Rate.—During the period 1 January 1945 through 31 July 1945, the average daily neuropsychiatric noneffective rate for the total Army was 6.1 per 1,000 troops. In other words, on the average less than 1% (0.6%) of the Army was in hospitals and quarters because of neuropsychiatric disorders on any one day during this period. (The peak load was reached on 30 April 1945 when there was a total of 50,000 neuropsychiatric patients in army hospitals; 36,000 of these in the United States, the remaining 14,000 overseas.)

Separations from the Service.—During the period 1 January 1942 through 30 June 1945, there were 320,000 men granted medical discharges from the Army (Certificate of Disability Discharge) because of neuropsychiatric disorders. This represented 41% of all medical discharges. In addition 137,000 men were discharged for neuropsychiatric disorders under a non-medical category.[3] This category includes mental deficiency, psychopathic personality, enuresis and certain other conditions which, according to army procedure, are not given medical discharges. Taking into account both medical and nonmedical categories, a total of 457,000 men were discharged from the Army for neuropsychiatric disorders.

The neuropsychiatric discharges fall into the following diagnostic groups:

	No.	% of NP medical discharges	% of total NP separations (med. and nonmed.)
Medical			
Psychoneuroses	224,000	70	49
Psychoses	48,000	15	10
Neurological dis. excluding epilepsy	21,000	7	5
Epilepsy	14,000	4	3
Other psychiatric	13,000	4	3
Total medical NP discharges	320,000	100	70.0
Non-Medical			
Mental deficiency, psychopathic personality, etc.	137,000		30.0
Total NP Separations	457,000		100.0

The proportion of these discharges which represent combat cases, is not known at present, however the following table shows the proportion of men discharged medically for neuropsychiatric disorders who had had overseas service. The proportion with overseas service among men discharged medically for all causes is included for comparison.

	% with overseas service among neuropsychiatric medical discharges	% with overseas service among all medical discharges
1943 (May-Dec.)	12	9
1944	35	33
1945 (Jan.-June)	69	66

[3] Inaptness, lack of adaptability, undesirable habits and traits of character, described in Army Regulation 615-368 and 615-369, formerly 615-360, Sect. VIII.

It is clear that the bulk of the cases discharged during 1943 and 1944 represented training casualties, whereas by 1945 most of the cases at least had had overseas service, and in a large proportion of the cases this included combat service.

The condition of neuropsychiatric cases at the time of discharge from the Army and their subsequent need for medical care and their ability to adjust to civilian life require further study. Of the psychoses, it is estimated that between 20 and 30% were transferred directly to veteran or other hospitals, the remainder were considered sufficiently well to be sent to the care of their families or to be on their own. Many of the men transferred to hospitals have subsequently in turn been discharged. For instance, in the period July 1944 through June 1945, the Veterans Service discharged 9,284 men who had been transferred to their hospitals from the Army with the diagnosis of psychosis.[4] A follow-up study (2) of 173 men discharged from the Army for psychoses prior to March 1944, indicated that 0 to 24 months after discharge, 106 were working and only 34 were in institutions. A significant proportion of the men discharged by the Army for psychosis represent cases in which there was merely a brief psychotic episode from which the individual promptly recovered and was discharged only for fear of recurrence. The proportion of these cases which will develop recurrences in later civilian life remains to be seen.

A follow-up study (3) of 6,000 men dis-

[4] These figures were taken from tabulations compiled by the Veterans Administration, Washington, D. C.

charged from the Army for psychoneurosis in 1943 indicated that although 86% were employed, full or part time, 75% had consulted a physician on one or more occasions, generally for the same medical condition leading to their army discharge, and 15% had been hospitalized one or more times for diagnostic study or treatment. However, it must be recognized that a significant proportion of these men were no sicker than they were before entering the Army; they were discharged merely because it had become evident that they were unsuited for further military service. In the above mentioned study, 51% of the men stated that prior to induction their health had been either only fair or poor.

General Comment.—In interpreting the data presented above it is important to recognize that the figures represent only rough indices of the actual incidence of neuropsychiatric disorders in the Army. They do show in round numbers the men actually rejected, hospitalized or discharged from the Army for neuropsychiatric disorders. However, because of changing manpower needs and other reasons, the criteria for rejection, admission to hospital and army discharge changed markedly from time to time during the war. At certain times, the criteria were relaxed and men with mild psychoneurosis or other minor psychiatric condition were rejected, hospitalized and discharged in large numbers. Then when manpower needs were felt to be more acute, policy changed abruptly and such cases were kept on duty and thus did not appear in these figures. The data do not include the large number of cases which were treated as outpatients in the Army at dispensaries, aid stations, mental hygiene clinics or hospital clinics, unless they were subsequently admitted to hospital or discharged from the Army for neuropsychiatric disorders.

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PSYCHIATRIC PROBLEMS AT OAK RIDGE

ERIC KENT CLARKE, M.D.

[EDITOR'S NOTE.—*Recently, as the shroud of secrecy was withdrawn from the activities at Oak Ridge, a letter was addressed to Dr. Eric Clarke, who at the inception of the project had been assigned to the medical service in his capacity as psychiatrist, asking him if he would care to report on the problems he encountered and on psychiatric matters generally in this new unique community.*

Dr. Clarke submitted the following modestly brief statement in the form of a letter. On its receipt it was suggested that some expansion of this account would be desirable, permitting him to touch upon certain other questions with which he had had to deal. He complied by sending the second, longer section of the report, and the two parts are presented together herewith.]

You have no idea what a relief it is to be living in the open once more; although living behind a barb wire barricade had its advantages, and I think created one of the most extraordinary social and incidentally psychiatric experiences that anyone could ask for.

It has been an interesting experience to see a new community start from nothing but a mud-hole into a city of 75,000 with all the usual conveniences of a well organized town, and to have a hand in helping iron out the difficulties. No one had fully anticipated all the things that could go wrong and create troubles. The army engineers, being fine, practical minded realists, went on the assumption that because everyone here would be employed at good wages and be supplied with a place to live, there would be no need for any social service organizations. The weak point was in confusing public relief with social welfare; indeed in no time at all social problems began to crop up. As our residents were all supposedly nice people no one anticipated that there might be juvenile delinquency and as we had a nice, new well-organized school system there would be no educational problems; but in a short time it became apparent that we had all the usual problems of the ordinary city, only greatly increased, because many people did not take the transplanting easily, particularly when they could not find the usual resources that they were accustomed to. In the beginning there was never enough of anything to go all the way around, not enough stores, not enough finished roads, and never enough houses; consequently the psychiatric department, because this happened to be the only socially conscious group, had to pitch in and cover all sorts of emergencies. As this was until recently the only group trained in community service, we have in rotation fostered the development of a juvenile court and a system of child guidance to look after the many problems in schools. These were a multitude in themselves because some of the children had been in as many as six different schools and, of course, were a pretty confused bunch of youngsters. The teachers, too, needed a lot of guidance for they were disturbed by a new school system that had not shaken down into good working order. We also helped organize a system of nursery schools.

Next we discovered that the tremendous number of young people who lived in dormitories, including a goodly number of young people who had never been away from home before and did not know how to handle a newly found freedom, made necessary a system of dormitory counselors, modeled more or less on that of the average college; but we had the added difficulty that these youngsters were independent working individuals over whom there could not be the same direct control that could be exercised over a student body. We had the inevitable occurrences of illegitimate pregnancies, alcoholism, and an occasional homosexual gang.

A large section of the population lived in huge trailer camps which at best were uncomfortable, obviously temporary and unsettling to a family life. When it rained there was a tendency for them to become mud-holes, and when it was dry they were dusty; when it was warm they were hot, but fortunately it never gets very cold so that no one ever froze to death. The spirit that these people displayed was amazing, and I don't think anyone need have any

anxiety about the American people who stayed at home being soft or unfeeling to undue hardships. Those of us who live in permanent, or semi-permanent houses have on the whole a pretty easy time, although the work has been hard with never a dull moment.

The psychiatric department has grown to include 5 psychiatrists and 5 social workers. Our difficulty in social work has been to secure enough personnel. We have had provision for 6 or 8, but never have been able to get more than 4 people on the job at one time until recently. We have developed a big out-patient clinic, a very active in-patient service, and in addition to the community work, we have been working in industrial psychiatry in the plants.

For a long time we were puzzled by the scarcity of major psychosis, as our greatest problem was the acute anxiety neurosis, comparable to battle fatigue encountered in overseas units. This has been a pretty serious situation on a civilian basis because we had a big job that had to be done in a hurry under pressure and tension and a good many handicaps. Lately we have been encountering more of the acute psychoses and as a result have developed a small psychiatric ward that is functioning quite well, except we have never been able to keep up the building plans ahead of the demands of the patients. We now have a medical hospital staff of 53 full time doctors, all of whom, with the exception of Dr. Whitaker and me, are army officers. The 3 junior men in my department are in the Army. Our positions were set up deliberately on a civilian basis in an otherwise solidly military unit to be a liaison service between the military and civilian administration. At times this has been a little uncomfortable as both ends have tried to use us as a convenient means of getting around complicating red tape. We have also been used a good deal by Military Intelligence, and have been responsible for the psychiatric service on our companion areas. The unit in New Mexico was completely hidden from the outside world and because of the tremendous secrecy that had to surround the whole project, psychiatric casualties that occurred there were major problems. I also covered that area and as a result feel that I almost hold the record of being dumped out of airplanes by bad weather on the transcontinental trips. Consequently, for several months every individual had to be passed on by my department before being transferred in an effort to avoid psychiatric problems developing in the New Mexico area.

No doubt, this community will continue on a long time, peace-time basis, but under what auspices can not be determined until after Congress decides how much research they want to continue on a peace-time application of atomic energy.

* * * *

There are some expansions that might be of interest. Our population has a curious range from top-flight, world-renowned scientists (Nobel prize winners functioning under other names) down to the local hill folk. It is predominantly a young people's town—our median age being 26; consequently, our obstetrics department is one of the biggest divisions of the hospital, 126 new-born babies for August, and reportedly the highest birth rate of any city in the country. We mention this prominently as one of the anxieties has been that working with radioactive material might induce sterility. The pediatrics division is also busy, but so far no serious epidemics, which speaks well for the medical care. Last summer there was an epidemic of polio in the surrounding territory, but only two mild cases showed up here. It seems our isolation may have helped, but I think probably more important is the caution our health officers and sanitary engineers used in fly and mosquito control—and the liberal use of DDT. We are in a section where typhoid and small pox are still prevalent, but by immunization and careful water control we have had none.

From the psychiatric angle, we have encountered nothing new: the same old syndromes with new angles. In my earlier letter I commented on the predominence of acute anxiety neuroses and fatigue reactions. Fatigue reactions with associated tension states have been most prevalent and are easy to understand, particularly in the executive group. Long hours, continued strain, a driving sense of pressure, no relaxa-

tion, and a situation that was never stable exacted their combined toll. It has been an abnormal setting in that as newer and better short cuts became apparent, large parts of the accepted scientific pattern and plan of last week would become obsolete this week. The scientific group, used to laboratory research in a university setting, were prone to become irritated by the more practical, down-to-earth engineering group, and vice versa. The psychiatrist, whose major task was to keep people functioning at capacity, was frequently to be found more or less in the middle and impotent to do much about it, except sometimes to offer indirect tips to administration as to where conflicts were to be found. One source of frustration to many of the minor scientific group, who were not aware of the total picture, was that they were required to spend months of repetition of a single chemical analysis without knowing what had gone before or what happened afterwards. Most were competent to do much broader work and felt thwarted that their function was so limited. The mounting tension that resulted frequently led to the psychiatric department, frequently via the medical department where they reported with vague symptoms that were of a psychosomatic nature. Probably this was one of the most interesting angles because of the impetus given understanding the psychosomatic relationships and the close cooperation that has been growing with some of the internal medicine group.

Many workers knew that they were dealing with unknown toxic material. Our safeguards against accidents have been effective, but the constant watchfulness and checking did lay the ground for anxiety and subsequent acute panic states in the more unstable. Those with basic paranoid tendencies found much to accentuate suspicions. No one knew who belonged to the intelligence force or when one was under surveillance. That was necessary and I think healthy for it served to put unconscious curbs on tongues and careless conversation was apt to be brought to attention with a caution. The surprising thing was the lack of curiosity as to what was going on. Everyone surmised it was important and, therefore, to be guarded carefully. At the same time each was so busy with his own jobs, that the rest was unimportant. Personally, I always felt more comfortable inside the barricade than outside for there were many more attempts at prying outside the reservation than inside. I found it was much more convenient to be from St. Paul, Minnesota when off the reservation, just happening to be in this section of the country. Many wives discovered for the first time what good conversationalists their husbands could be, for "shop talk" was outlawed and other topics of conversation had to be cultivated on a purely protective basis. It was tacitly accepted that what you were doing on your particular job was taboo. Strangely it worked, and the newspaper reports of the surprise of the community on the announcement of the atomic bomb are quite true, mostly.

Some of the restrictions that were imposed were disturbing at first. It was hard, for instance, to always remember that the job came first and the individual second. In the beginning any unsuitable individual was simply expelled from the reservation. This was hard on public relations with the surrounding towns. Gradually less drastic measures came, for after all it became apparent there was a definite obligation toward the individual. This was a new point of view to the engineers whose previous training and experience had been in construction camps with always a ready supply of replacements and the family existence of the worker outside of their interest or responsibility. Alcoholics have been a big problem, particularly in the construction workers—as rough and ready a gang as can be encountered. This is a "dry" section of the country and bootlegging a thriving business. An amusing true story of this involved one of the concession executives whose business took him off the reservation daily. It was a standing joke at the gate, where everyone's car is routinely searched, for him to say—"Here are the keys to the trunk, boys. Better take a look, for it's filled up with whiskey." This went on for weeks and inspection never revealed anything, so it ceased. One day, considerably later, there was a new lieutenant on the

guard, who did not know the joke. He looked—and the trunk *was* full of whiskey.

Gradually our social service resources have evolved, with much greater consideration for the individual, and as experience taught effective methods of meeting our recurrent difficulties procedures were simplified.

The growth of the hospital was typical of the rest of the community. It started as a 50-bed unit, but before it was finished it was recognized that more beds would be required so an additional 50 were added. In three months another 100-bed unit was started and before that was finished still another 100 was started. Although the official listed bed capacity is 300, frequently the daily census is over 350. On one occasion in the early days a troop train was wrecked in the mountains near us. Thirty soldiers were killed and over 100 seriously injured. We accommodated them quite successfully on very short notice, which gave us the only opportunity so far to see how adequate our disaster organization was in operation. As there is no other medical facility available, it has been essential that every ill patient be accommodated somehow. The psychiatric ward has an *official* capacity of 14 patients. The day it opened we had 15 and only occasionally since then has it fallen below 20 and has been as high as 28. We merely overflow into adjoining medical beds at night and use our dayroom.

I believe that the quality of medical care equals the best in the country. All our original medical staff was drawn from various medical school hospitals, and even when under terrific pressure there was a universal unwillingness to lower the standard of work they were accustomed to offer. There has been continued interest in keeping up with medical progress. As our hospital dining room is perpetually overcrowded, it was decided to have a daily staff meeting at noon in the medical staff library. I have reached a point where I doubt if I can ever look a sandwich squarely in the eye without flinching. Monday is given over to administration and hospital policies; Tuesday, review of current medical literature by departments in rotation; Wednesday, military movies; Thursday, clinical case presentations; Friday, alternating X-ray and pathological conferences. Once each month there is a meeting of the Oak Ridge Medical Society. The civilian full-time physicians of the industrial plants are included in these monthly sessions devoted to some topic of major universal interest.

The psychiatric work developed more or less under forced draught. The service had to be down to earth and practical. So often psychiatric services have been content to offer a diagnostic consultation and submit a neatly worded report with little or no effort at treatment. That did not work here. The cases were referred to us for keeps and there was no one to whom we could refer them. We had to carry them along. Those patients who were in "non-critical" categories, meaning that they had no intimate contact with secret procedures, could be transferred out; but often it was extremely difficult to arrange for transfer to an out-of-state hospital, and a large proportion of our residents came from other states. Tennessee State Hospitals, being understaffed and overcrowded, did not welcome non-resident transfers, and we were forced to develop our own resources. Our treatment results have been surprisingly good considering our limited facilities. Our real difficulties came with those who had secret knowledge that would not permit transfer for security reasons. For this group it was necessary to create a closed treatment unit. The amazing thing to us is that several patients who were acutely psychotic never once broke secrecy or discussed the secret work even in the depths of the psychosis. This need for secrecy created many unique nursing problems that were new to all of us.

As time passed and our case load mounted faster than we could gather staff, we were forced into group therapy. Several of us had used group therapy to some extent before, but necessity being the mother of invention proved no exception in working out a system that forced this technique to a primary position. Two of the group, Capt. Fleeson and Capt. Warkentin, had worked for several months in a rehabilitation center and military psychiatric hospital before coming here and had some well formulated ideas of working with a convalescent group of neurotics. Dr. Whitaker had used it with de-

linquents in a correctional school, Major Law with men on Alcan Highway. Here gradually the technique included even the psychotics who were beginning to reach out toward reality, and it proved most effective with the psychiatric staff, psychiatrists, nurses and ward aides being part of the group, rather than superimposed on the group. The goal was to create a group leader from among the patients and to direct discussion into the realm of emotional problems common to the group. The ability to assume leadership proved a fairly reliable index as to progress. Several times individuals whose insecurities made it difficult for them to be assertive in their own milieu surprised us by the ability to be aggressive in their opinions in the group, while still retaining this same inability in their individual relationships. It is a useful therapeutic point in the patient's discovering that the potentiality for independence exists if he can learn to use it on his own. The results are most encouraging. This same technique has been used with out-patients and with some of the neurotics encountered in the industrial plants. The same approach is now being used with some of the supervisory groups and is a useful approach to outlining a practical mental hygiene philosophy in social relationships.

The incidence of psychiatric disorders in the Santa Fe installation caused much concern, for it was our holy of holies whose very existence was vigorously denied. After much discussion, it was ordered that every military transfer had to be reviewed by this department prior to transfer. It was a biggish order, and again it was necessary to develop a new variation of the group technique of interviewing. This was a big responsibility that was different from the psychiatric screening procedure used at the induction stations that each of us had participated in before coming to Oak Ridge. Here we were selecting *into* our own unit, and the whole acceptance of psychiatry as a useful adjunct depended on our results. Military Personnel Division looked particularly askance at the innovation, for the suggestion of psychiatric screening was to them a criticism of their methods. Their alertness to drop on any errors that might slip by proved the necessary challenge that psychiatry had to demonstrate its value. Experience in using group technique as a therapeutic measure was invaluable in modifying it to use as a selective technique which my associates have developed into a useful tool. The by-product of therapy in these screenings has grown to be a very considerable factor. Incidentally, Military Personnel Division has come to accept the service and are staunch backers at this point, although the conversion was not an altogether painless process to both sides.

I am still not sure whether the value is in the technique itself or comes from the way it is used by the enthusiastic examiners as a means of ferretting out the information they seek. It is hard to evaluate this point, because all of the group have worked so closely together on it that it is difficult to say where the individual stops and the technique starts. However, in the recent literature of this country and abroad, others are reporting similar results of variations of what is used here that are quite convincing. Fleeson has had considerable correspondence with Col. Wilfred Bion in England who has used much the same system in reassignment of officers in the British Army with results comparable to ours. Be that as it may, it has worked here and has reduced the incidence of breakdowns in the other area.

Child guidance was another important angle of the psychiatric service. Crowded living quarters, absence of household help, difficulty in shopping and transportation, and the high incidence of working mothers, made nursery schools an essential. The staff to run them was carefully selected, with a good sprinkling of untrained volunteer assistance, but it did require a good deal of psychiatric consultation cooperation in the early days to get the program rolling smoothly. Another unusual angle was that the community worked on rotating 8-hour shifts, 24 hours daily, seven days a week; consequently, provision had to be made for a 24-hour schedule in one nursery school to look after those youngsters whose parents were on night shift. Many pre-school children were upset by this chaotic existence. They were insecure and fearful, and it seemed essential that the best possible mental hygiene facilities be evolved.

There was an equally serious problem in the schools. There was a school population of close to 10,000 youngsters. Every one of them was a transplant, and many had been in several schools in a comparatively short time. The previous educational experience of the youngsters was varied. The offspring of the scientific group had frequently been in outstanding private progressive schools in the metropolitan areas of the north and east. At the other end of the scale were the hill folk children from the one-room mountain schools of this section. The teachers were all new with wide differences of educational backgrounds, experience and philosophy. It can be surmised that there were many perplexing educational problems. The unsettled living conditions at home contributed to the disorganization. There was never enough trained staff, psychiatric, psychological or social service to work along with the educational group to do a job with which we could be satisfied. This will be a source of everlasting regret, but after all the major responsibility was to the mental health of the adults whose continued functioning was essential to the completion of the job. This skimming over the surface in the child guidance field was a big disappointment to me personally with my many years of concentration on children's work. However, it was one of those difficult decisions that had to be made—only so much staff, an ever increasing range of emotional problems, a realization that our resources could not do the whole job, and that effort must be concentrated where it could do the most immediate good. Believe me, it was frequently hard to separate out just what constituted "the most immediate good." This school year that has just started is going to be much different. The school system has stopped growing; the teaching staff is settling down into its stride and there is a sufficient volume of youngsters who have been here long enough to develop some sense of belonging. There is also a better organization of school psychologists, trained student counsellors and school social workers who do good liaison work between the school and the home. In another year, the school system should equal any in the south.

Juvenile delinquency problems are exactly what one would anticipate in a setting as chaotic as this, but again those who planned the community overlooked this until the problem could no longer be ignored. The early civilian law enforcement group consisted of unimaginative policemen from the surrounding territory, and you will recall that it is only recently that the chain gangs in Georgia were getting a lot of unfavorable publicity. Enough said, for Georgia is our neighbor and the differences between adjoining states are not great. As far as top administration was concerned, there was no problem of juvenile delinquency for it was not brought to their attention. There was little that was serious—mostly malicious mischief, petty theft and so on. It was increased by the ease with which youngsters could earn money because of manpower shortage. High school students were encouraged to work after school—it was one way to keep them out from underfoot; but it did encourage a certain amount of truancy, and in the early days it must be admitted that the child labor laws were given scant attention. At one point the bank manager expressed concern over the number of little boys, who could barely write their names or be seen over the high counter in the bank, who were coming in to cash their pay checks for setting pins in the bowling alleys. True they were only *supposed* to work late afternoons and early evenings, and the managers of the bowling alleys said that without the assistance of these little kids the alleys would have to close. The bigger boys could fit other jobs that paid better. It must be admitted that for a short time the index as to whether the work was too hard for the little shavers was whether he stayed awake or fell asleep in school. There was a good deal of acrimonious dispute on this point, even by the parents. Many of them lived in the trailer camps, and no matter how you look at it there is not much room in them. The parents often argued it was better for the youngsters to set pins in the bowling alley, where they could earn money and be out of trouble than to be constantly running to the movies or getting into trouble outside, because there was no room for them at home and if it was rainy or muddy there

was no place outside. The recreation centers were used chiefly by adults in the early days, and there was no place for the youngsters. Later, there were several youth centers organized that changed the picture completely, but there were hectic days that antedated their establishment. This is indicative of how important factors can slip by unnoticed in the terrific rush of getting a town going. Perhaps these remarks sound unduly critical of the administration. They are not intended as such, but the point is cited merely to indicate how things could be lost in the hustle of seemingly more important items. There has been a gratifying lack of serious delinquency all the way through. Since the establishment of a juvenile division of the Military Police, under the leadership of a very able young officer who in his pre-army days was with the Cleveland Juvenile Court, the situation has improved greatly. Again it is an evidence of what has to be gone through in creating a new city in a hurry.

Adult delinquency has probably been less than in the average boom town, first, because of the careful pre-employment check on everyone by the military intelligence and the constant supervision after arrival. That has a sobering effect on the would-be delinquent. Such occurrences as burglaries are almost non-existent. Assault and battery, alcoholic brawls have been frequent. We have had an occasional murder. Bootlegging, gambling, illegitimacy, and moral turpitude are to be expected in any community of this size, but have been no worse and probably much better than the average.

The emotional problems that have cropped up in the community are all of the ordinary type accentuated by the strenuous living conditions. Life has been unduly hard on the women folks, particularly those with small children, but in general they have been a courageous lot, who have taken it all in their stride. Still they *do* get tired and upset. The usual family problems are here, and because of the peculiar organization of the set-up it seems that one hears of them a bit earlier than in the usual town. That is one place where the unification of service has advantages. For instance, suppose through the industrial psychiatric branch a man is encountered who is upset, nervous and anxious on the job and there is suspicion that the root of the trouble lies in the home. In severe upsets, to get the total picture, it is easy to get a quick "look see" at his youngsters in the school to see if there is any evidence of tension in them. If there is, it is not impossible to get a social worker to make a home visit, ostensibly to go into the child's problem, without there being any apparent connection between the father's tension at work and the home study. In this way it is possible to get a complete over-all picture of a family problem and to carry through a treatment program for each member of the group that is integrated but carried out by different members of the psychiatric staff in their particular spheres of duty. It would not be feasible in any other than a setting like this, and has been interesting from a scientific viewpoint to see what could be done. It, no doubt, smacks of paternalism, but it was justified on the basis of carrying out a necessary job with a minimum of interference with efficiency of the worker. The solution of the family problem was a by-product of the industrial psychiatric service.

As I indicated in my earlier letter, no one ever attempted to define the responsibilities of the psychiatric department, and consequently many things that were quite remote from the strictly psychiatric sphere found their way to this doorstep. They can be classed possibly as mental hygiene problems. The explanation may be that none of us in this section was able to keep quiet when something seemed to be going wrong, and often what was meant to be a helpful suggestion bounced back with a terse note to get busy and see what could be done to straighten it out. It was challenging, even to our inadequate staff. In many ways it was like riding on a badly worn tire. When a blowout occurred, you applied a patch and wondered where the next blowout would come.

So often complications would arise through hurt feelings, which in turn created defensive reactions that took valuable time to remove when free time was at a premium. People are ever prone to react to suspected criticism that was not intended. When we were frankly critical, we did not hesitate to verbal-

ize it. One compliment I value highly came from the Administration to the effect that "Clarke is a cantankerous cuss who is never satisfied. He is always finding fault with something, but damn him, he always includes a suggestion of what can be done about it along with his gripe." In the main the program seems to have won a favorable response, for after all each was fundamentally interested in the same thing—getting the bumps in community living ironed out.

Sometimes it was hard on the blood pressure to have to sit back and wait for what appeared inevitable to happen. It is unfortunate but sometimes in the long run is the quickest and most effective way of getting results for the total program—hard as it may be on the unfortunate individual who must suffer because his particular problem is not fully understood or seemingly of sufficient importance that rules and regulations should be broken to protect him. That is probably a necessary part of social progress; but it is nevertheless frustrating to see the flaws of national social customs being repeated without any real justification in what might have been a new pattern in community life, if there had only been time to work it through. Still in looking back the community emerges as a rather successful venture that is apparently far more wholesome and smoothly functioning than most of the uncontrolled wartime communities that sprang up around many newly hatched industries. Conversations with those associated with these other mushroom towns indicate that most of them had innumerable problems that were eliminated in our barricaded town. That knowledge is helpful, for even if Oak Ridge is no Utopia it is a reasonably comfortable and satisfactory place to live considering the hurry and conditions in which it developed. All of us made mistakes, but there was no comparable experience that could be used as an example in guidance. The administration here has done a remarkable job and it has been a real privilege to have played even a small part in making the community a going concern.

The experience has not been without its amusing side, and the life here has been particularly hard on those who lack a sense of humor. There has been a delightful informality about the community, for the lack of tradition and lack of adequate facilities did much to level social stratification in the early days. However, that did not last, and gradually the oil and the water are separating out from the original emulsification. In the trailer camps and demountable houses there is still a completely democratic spirit—that could only work in a community like Oak Ridge in wartime conditions on what proved to be the atomic bomb. That is a chapter that must be told for it loses a lot in writing. It is safe to say that those who survive Oak Ridge from its beginnings are better for the experience and look back on it as an unusual and valuable period.

If we had to do it again, it could be done much better, although I doubt if I would have the courage to start in all over again. On the other hand, none of us had ever built a city from scratch before. It was hoped that it might prove a Shangri-La in spite of its mushroom growth. There is divergence of opinion as to what we hatched, besides the atomic bomb. Some feel it is a hellhole, to others it has been merely purgatory, and others regard it as somewhere in the lower planes of heaven. Perhaps this is a good place to stop and let it rest on its merits of being merely Oak Ridge. Bless its heart—but I kind of like it as it is.

PSYCHIATRIC TESTIMONY BEFORE COURTS-MARTIAL*

1. Purpose.
2. Legal Standard of Mental Accountability Under Military Law.
3. Rules of Evidence and Methods of Presenting Testimony.
4. Relationship of Types of Psychiatric Disorders to Responsibility
5. The Value of Punishment as a Deterrent.
6. Suggestion for the Pre-Trial Psychiatric Examination of an Accused.
7. Persons Who May be Designated to Carry Out Psychiatric Examination.

1. Purpose

a. In order for a psychiatric medical officer to discharge his duties as a witness in courts-martial cases efficiently he should thoroughly understand the legal standard of mental accountability enforced by military law and should be familiar with the proper methods of psychiatric examination and the basic requirements of expert testimony. The purpose of this bulletin is to supply some useful information to those ends.

2. Legal Standard of Mental Accountability Under Military Law

a. *Standard of Mental Responsibility Under Military Law.*—

> A person is not mentally responsible for an offense unless he was at the time so far free from mental defect, disease, or derangement as to be able concerning the particular acts charged both to distinguish right from wrong and to adhere to the right. (5th subparagraph of paragraph 78*a*, p. 63, MCM, 1928.)

This standard, which is unique to military law, includes not only the concept involved in the traditional so-called right and wrong test, but also the more liberal concept involved in the so-called irresistible impulse test. The first concept recognizes that a person without an appreciation of the rightness or wrongness of an act cannot have a criminal mind or formulate a criminal intent. The second concept recognizes that, if a person, because of mental illness, is deprived of the power of choice or of volition, he does not possess the mental attitude and freedom of action essential to criminal responsibility. It should be observed that the standard is not limited to a determination of the existence of "insanity," which is popularly used to denote the existence of a psychosis, but also covers every type of mental illness, including neuroses, when such illness results in involuntary behavior. Since the ultimate mental and criminal accountability of an accused must be made by a court composed of laymen, the standard is phrased in non-technical terms. Its chief purpose is to center the court's attention upon the difficult, factual problem of answering the following all-important questions:

> (1) Was the accused at the time of the alleged offense "so far free from mental defect, disease, or derangement, as to be able concerning the particular act charged" to distinguish right from wrong?
>
> (2) Was the accused at the time of the alleged offense "so far free from mental defect, disease, or derangement as to be able concerning the particular act charged to adhere to the right?"

If either of the answers is in the negative, the accused should be found not guilty by reason of mental defect, disease, or derangement.

b. *Presumption of Sanity—Burden of Proof.*—Every person brought to trial before a court-martial is presumed to be sane and mentally accountable for the offense charged against him. This presumption continues until sufficient evidence is presented, either by the defense or the prosecution, which raises a reasonable doubt to the contrary. In that event the presumption of the accused's sanity is vitiated, and a legal burden is placed upon the prosecution to prove, beyond all reasonable doubt, that the accused was "so far free from mental defect, disease, or derangement, as to be able concerning the particular act charged both to distinguish right from wrong and to adhere to the right." If the prosecution fails to establish such proof and the court-martial has a reasonable doubt on either of these two issues of accountability, the accused should be acquitted.

Although the defense counsel, in an appropriate case, is under a duty to present evidence of the accused's mental deficiency, the court is also under a duty to guard the

*War Department Technical Bulletin, War Department, Washington 25, D. C., 1945.

accused's right in this particular. The Manual for Courts-Martial states:

> The court will inquire into the existing mental condition of the accused whenever at any time while the case is before the court it appears to the court for any reason that such inquiry ought to be made in the interest of justice. Reasons for such action may include anything that would cause a reasonable man to question the accused's mental capacity either to understand the nature of the proceedings or intelligently to conduct or to cooperate in his defense (MCM, 1928, par. 63).

c. *Mental Capacity at the Time of Trial.*—No person should be brought to trial unless he possesses a sufficient mental capacity both to understand the nature of the proceedings against him and intelligently to conduct or to cooperate in his defense. When there is any reasonable doubt as to this matter, the court has the duty to answer in the negative the following question:

> Does the accused at the time of trial possess a sufficient mental capacity "intelligently to conduct or cooperate in his defense?" (1st subparagraph of paragraph 63, MCM, 1928.)

If the accused cannot meet this test, he may not legally be tried.

d. *Result of a Finding of Not Guilty.*—A finding that an accused is not guilty by reason of mental defect, disease, or derangement does not automatically adjudge him to be insane, but only indicates that a reasonable doubt exists concerning his mental accountability which requires his acquittal of the particular offense charged. The fact that an individual has been found not guilty by reason of mental defect, disease, or derangement does not necessarily in itself constitute adequate reason for commitment to a mental hospital. The medical disposition of such an individual should be determined in the usual fashion by admission to a hospital for appropriate observation, treatment, and disposition in accordance with existing Army regulations.

e. *Partial or Diminished Mental Responsibility as Affecting the Sentence to Be Imposed.*—A court-martial performs two distinct functions. First, it passes upon the guilt or innocence of an accused, and, secondly, if the accused is found quilty, it imposes a sentence upon him. The psychiatrist's testimony may assist the court in the performance of both of these functions. As an incident to the first function, the court-martial must frequently determine whether an accused is "so far free from mental defect, disease, or derangement, as to be able concerning the particular act charged, both to distinguish right from wrong and to adhere to the right." If the court determines that the accused can distinguish right from wrong and adhere to the right, it must hold the accused fully responsible in law for his conduct. So far as a finding of guilty is concerned, the accused may be said to be wholly accountable or not accountable at all.

On the other hand, the court-martial in performing its second function of imposing a sentence is, in most cases, given considerable latitude. For the purposes of punishment the law recognizes that the true measure of an accused's moral guilt may depend upon various extenuating and mitigating circumstances, including the degree of the accused's mentality. Accordingly, a court-martial may properly consider evidence showing that the accused is suffering from feeblemindedness or from some other form of mental defect. When such a condition contributes to the offense charged, the defense counsel is obligated to produce evidence of its existence. The court, in its turn, should consider such a mitigating circumstance and endeavor to impose a sentence which is just and suitable to the true criminality of the accused.

Although the court-martial is primarily responsible for the punishment imposed, the sentence is frequently reduced or mitigated by the reviewing or the confirming authority. When requested, the psychiatrist is under a duty to advise such an authority concerning any mental defect which, as stated above, may have contributed to the offense charged. The psychiatrist should also convey his opinions concerning the ability of the accused to profit from experience, from punishment, or confinement, and the probability of the accused's being rehabilitated for further useful service. In this manner the psychiatrist may greatly assist the reviewing or the confirming authority in determining whether an accused should be sent to a rehabilitation center, a disciplinary barracks, or to a penitentiary.

3. Rules of Evidence and Methods of Presenting Testimony

a. *Non-Expert Testimony.*—There is no rule of evidence which requires the testimony of an expert witness on matters of mental accountability to the exclusion of the lay witness. A lay witness who is acquainted with the accused may give an opinion concerning the accused's mental accountability provided the witness first describes the habits, speech, peculiarities, or conduct upon which the opinion is based.

b. *Expert Testimony.*—Any alienist or psychiatrist or any licensed physician who has some knowledge of psychiatry may testify as an expert witness in a court-martial case. The extent of an expert's specialized training or experience are matters which affect the persuasiveness of his testimony rather than its admissibility. The primary function of the expert witness is (1) to enlighten the court on the pathology and symptoms of the particular mental disease or disorder from which the accused may be suffering at the time of trial or from which he may have been suffering at the time of the alleged crime and (2) to explain the probable effects of such symptoms upon the accused's mental ability to (a) distinguish right from wrong and (b) to control his conduct and to adhere to the right. The usefulness of testimony of this character depends upon the logic and the clarity with which it is presented. The reasons for the opinion are more important than the opinion itself. The opinion of the expert witness may be based upon the following:

(1) Personal acquaintance with the accused.

(2) Personal examination and observation of the accused.

(3) Hypothetical questions are of great assistance in trials as they permit medical officers to express opinions upon facts assumed to be true which in reality may be in dispute. The truth of the disputed facts is determined by the court in military trials. By use of the hypothetical question the court is given the benefit of the expert's opinion for use by the court if the court resolves the factual issue consistent with the assumed facts in the hypothetical question. Hypothetical questions are a means of gaining expert opinion upon the different possible factual determinations upon the evidence forming a part of the record of the trial. The answers to such questions may be founded upon personal knowledge and experience or upon recognized books and treatises in the field of medicine and psychiatry.

c. *Circumstantial Evidence.*—The law recognizes that mental capacity must be discovered largely by circumstantial evidence, and considerable latitude is allowed by courts-martial in the reception of evidence which may have a logical relation to the matters in issue. This rule permits proof of the accused's previous conduct and history. Specific acts alone may not disclose the state of the accused's mind but may form a part of the totality of conduct indicating sanity or insanity.

d. *Methods of Examination.*—The usual methods of producing testimony before a court is by question and answer. Independent narration is regarded with distrust because it may introduce incompetent and irrelevant matters. Direct examination involves the original testimony of a witness by the party calling him to testify and consists of direct questions propounded from the viewpoint of the examiner. Cross-examination consists of the examination of the witness by the opposite party and is generally limited to the matters covered on direct examination but the theory of the cross-examiner is contrasted with the theory of the direct examiner. This method of contrasting the direct examination with the cross-examination has the effect of testing not only the truthfulness of the witness but also his unintentional errors and his accuracy of narration, of observation, of recollection, *et cetera.* Cross-examination is recognized as the law's most effective means of promoting truth and justice, and every witness should willingly coöperate with the cross-examiner.

e. *Insanity of Relatives.*—Although insanity is not necessarily inherited, the law recognizes that a definite predisposition toward this condition may be transmitted to descendants. Courts-martial have been liberal, therefore, in receiving evidence concerning the insanity both of ancestors and of collateral relatives.

f. *The Report of a Board of Medical Officers.*—A report of a board of medical officers appointed pursuant to Army Regulations 600-500 may, when properly authenticated, be placed in evidence. Since the personnel of the board act out of court and since they have not been subjected to cross-examination, the accused has a right to call them

as witnesses and to cross-examine them concerning their statements and conclusions.

g. *Limitations on Expert's Testimony-Legal Conclusions.*—An expert witness in the field of psychiatry is not qualified to express an opinion on questions of law. He should not, for example, describe the accused as "legally sane" or "legally insane." He may, however, express an opinion in the terms of the standard, that is, he may express an opinion as to whether an accused has the mental capacity to distinguish right from wrong and to adhere to the right. His opinion should be as positive in form as his convictions will permit. If phrased in terms indicating uncertainty or conjecture, it will be of little assistance to the court.

h. *Non-Privileged Communications to Medical Officers and Civilian Physicians.*—Under military law the information acquired by a medical officer or a civilian physician in conversing with a patient or in observing or examining him may be inquired into by a court-martial. "While the ethics of the medical profession forbid them to divulge to unauthorized persons the information thus obtained and the statements thus made to them, such information and statements do not possess the character of privileged communications" (MCM, 1928, par. 123*c*).

i. *Effective Presentation of Psychiatric Testimony.*—In order to be effective, psychiatric testimony should be presented in as non-technical language as possible. The courts are only confused and alienated by the unnecessary use of medical terms. If such terms are used, they should be defined so that they may be intelligible to laymen. Although cross-examination may be pointless and at times very irritating, the witness who loses his patience or grows angry discredits himself and clearly reduces the value of his testimony. Marked evidence of partisanship on the part of an expert witness is justly viewed with disfavor by the court. On the other hand, the witness who is sincere is more likely to impress the court favorably. One should never hesitate to admit before a court the limitations of one's medical knowledge or experience. Such admissions are not interpreted as a display of ignorance but rather as evidence of scientific honesty. It should be remembered that few persons have such professional renown that a mere expression of opinion carries conviction before a court. The weight of psychiatric testimony is dependent chiefly upon the thoroughness of the inquiry and the examination upon which the opinion is based, the logical way in which the testimony is presented, and the cogency of the reasons given. The examining attorneys have not only the right but the obligation to make searching inquiries into the methods and techniques employed by the psychiatrist. An assumption on the part of a medical witness that his conclusions and his techniques are beyond question and beyond the comprehension of the court is to be decried, for it is the witness' obligation to make his methods and techniques intelligible to the court. When a "yes" or "no" answer is requested, it should be given, subject, however, to the right of of the witness to explain and to amplify what he means.

4. Relationship of Types of Psychiatric Disorders to Responsibility

Although diagnostic labels may contribute to clearer medical thinking, they have in themselves no inherent medicolegal value. While each case must be carefully analyzed independently of its diagnosis, certain generalizations can be made about the chief diagnostic categories.

a. *Mental Deficiency.*—

(1) Accredited intelligence tests, if properly administered by skilled technicians, are important elements in the total evaluation of an individual's intellectual level. There is current a lamentably widespread, though fallacious, tendency to accept the test scores as absolute indices. Intelligence is so complex a function that no test, or battery of tests, can give exact measurements. It is well known that the test performance of an individual may be subject to wide variations, dependent upon the test conditions, the individual's attitude, his state of health, *et cetera.* Psychometry (intelligence testing) is an established and complex discipline. The professional competence of the technician is an important element in evaluating the weight to be given the test results. The application of group scores to the individual must be viewed with caution. Such scores are merely a rough approximation of his true intellectual

level. Appraisal of intelligence on the basis of personal appearance and the answers to general questions of no recognized scientific validity is extremely unreliable. Accurate information about the individual's school, work, and personal life adjustment must be given careful consideration along with the test scores in making a final evaluation of his intelligence level.

(2) In order to reach an opinion as to whether an individual has sufficient intelligence to be legally responsible, one must take into consideration his social background and the crime with which he is charged. For instance, a feeble-minded youth from a benighted social enviroment may not have sufficient powers of discernment to know that petty thievery or sex perversion are wrong, but he would be well aware that murder and arson are wrong.

(3) The term "feeble-minded" is synonymous with "mentally defective." Both terms are specific and should be so employed. They signify a constitutional intellectual incapacity and do not refer to intellectual incapacity resulting from deterioration or intellectual blocking due to illness.

(4) In the case of feeble-minded individuals the question of their ability to adhere to the right is not of importance and is usually not in issue. Their deficiency concerns only the problem of responsibility and their capacity to distinguish right from wrong.

b. *Psychoses.*—

(1) The term "insanity," which was once widely used in general psychiatry, is now used by most psychiatrists solely in the field of medicolegal psychiatry. When so used, it is synonymous with "legal irresponsibility or incompetency." It is used in this sense in the Manual for Courts-Martial, 1928. Since, however, the term insanity is not contained in the military standard of mental accountability and since that standard differs from standards employed in other jurisdictions, any statement in the testimony of a psychiatrist before a court-martial that an accused is sane or insane is confusing and should be avoided.

(2) Occasionally the term insanity is still used to mean psychosis. This application of the term is inaccurate. Although most psychotic individuals are legally irresponsible and incompetent, this is not always the case, because their irresponsibility or incompetency is dependent upon the severity or disabling effect of the disease. On the other hand, all irresponsible and incompetent individuals are not necessarily psychotic, for their irresponsibility may be due to feeble-mindedness or in certain instances to neurosis. For this reason, as well as the reason set forth in (a) above, it is confusing in testifying before a court-martial to use the general term insanity.

(3) If the existence of a psychosis in an individual prior to the commission of a crime has been established, his irresponsibility is highly probable.

(4) If the examiner believes that the criminal act allegedly committed is an early symptom of a developing psychosis, he should so inform the Trial Judge Advocate, who will take such measures as may be necessary to obtain for the accused an extended period of observation in a psychiatric ward.

(5) One must always consider the possibility that the reaction of the accused to the commission of the alleged crime, his subsequent capture, and his impending trial may have produced a psychotic reaction in him if he is a vulnerable individual. Often this decision can be reached only after the most careful questioning of many individuals who have had the opportunity to observe the behavior of the accused.

(6) Many legal decisions in the past have been founded upon the belief that the mind can be sub-divided into various watertight compartments, and that an individual may be deluded or hallucinated in one sphere of thinking and entirely normal in all others. In general, it is agreed among psychiatrists that any particular symptomatic mental expression or act is related to the total personality. A great majority of symptomatic expressions, even though apparently the only conspicuous evidence of maladjustment, are always related to the total personality structure, which on close investigation reveals other evidence of past or present maladjustment. In rare types of mental illness, such as paranoia, the delusional system may be compartmentalized while the other personality functions remain relatively intact.

(7) An accurate appraisal of responsibility in the psychotic patient will depend

on the findings of the psychiatric examination. If the criminal act can be shown to be an effect of a mental disorder, the accused should be considered irresponsible for the act.

c. *Psychoneuroses.*—

(1) It is rare to have psychoneurotic individuals declared legally irresponsible. The personality structure of such an individual is usually not sufficiently disorganized to interfere materially with cognitive capacity. Occasionally, however, a psychoneurosis may become severe enough to deprive the accused of the ability to adhere to the right.

(2) The legal responsibility of the psychoneurotic individual presents a difficult problem in military psychiatry. In civilian life the individual with severe psychoneurosis may very likely change his way of life so as to be able to live in harmony with his neurosis. Because of the rigid pressures of military life this compromise is generally impossible in the Army. For example, the severely neurotic trainee may, as the result of his illness, be incapable of withstanding his morbid urge to run away from his camp or from combat. Consequently, even though military medicolegal experience fully holds most psychoneurotic individuals as responsible, grave injustice may be done in combat cases. It is well recognized that under combat conditions of great and prolonged stress the soldier may develop a moderate to marked disorganization of the personality functions. His syndrome is recognized as being different from a psychoneurotic type of response and closer to a psychotic response. In most instances, however, if taken out of combat, the man may develop a typically psychoneurotic reaction within a few days. Cognizance must be taken of the fact that his act cannot be judged on the basis of his psychoneurotic syndrome but should be, in those cases where it occurs, related to the psychotic-like syndrome.

(3) The distinction between cowardice and neurosis may be difficult to establish. Even if the diagnosis of a neurosis in the accused has been established, the problem then presents itself as to whether the disorder was of sufficient gravity to have so affected his power of reasoning as to render him incapable of controlling his emotions and adhering to the right. There are no rigid criteria by which one can arrive at such an opinion. The syndrome must be viewed in its totality. A definitive opinion can be reached only after data from all of the following sources are pieced together.

(a) The nature of the symptoms reported to and observed by the medical and line officers who saw the accused at or soon after the alleged crime.

(b) An analysis of the personality make-up and character of the accused obtained by a detailed longitudinal study of his civilian and Army career. Great importance should be given to sudden changes in personality and behavior.

(c) The reported degree of stress that existed at the time of his misconduct.

(d) The psychiatric examination made by the medical witness before testifying.

(e) Whether or not the soldier had previously displayed neurotic symptoms which had gradually built up to his final episode.

(f) Whether or not he had previously been regarded as a man of principle and character.

(g) Whether or not at the time of his disaffection he manifested grossly abnormal behavior or merely left the combat area.

(h) Whether or not he soon thereafter reported to a medical officer or to a military police officer or went to some rear area in an attempt to escape detection.

(i) Whether or not he was faint, tremulous, sweating, confused, or nauseated and whether or not his pupils were dilated and his pulse very rapid.

(j) Whether or not such anxiety symptoms, if they existed, were of long duration.

(k) Whether or not his utterance at the time and subsequently were incoherent, confused, or irrational.

d. *Psychopathic States.*—

(1) Psychopaths are the group of psychiatric cases about whose mental accountability lawyers and psychiatrists have their chief disagreements. In part, this is the result of the conglomerate and ill-assorted types of cases included under this diagnostic category, for the sexual deviate, the biological weakling, the aggressively antisocial individual, and many others are all put into this group. Furthermore, there are degrees of psychopathy, just as there are various grades of severity in the psychoneuroses.

(2) Psychopaths are generally held to be

legally responsible for their acts. The differentiation, however, between the neurotic and psychopathic offender is often very difficult. In some cases this distinction can be made only after impartial objective accounts from outside sources of the individual's behavior patterns are obtained. Behavior disorders associated with various types of psychoneuroses tend to be repetitive in the same individual, unrelated to social situations, and confined to one particular idea or set of ideas. In contrast, the behavior disorders of the psychopathic personality specifically affect social relationships and responsibilities and thus become manifest in many areas of conduct associated with many ideas.

(3) The neurotic individual has generally been a rather conscientious, often worrying, type of individual who has been essentially law abiding. His delinquent behavior impresses one as out of keeping with his general character and as being walled off from his total personality. He is himself bewildered by his acts. When the delinquent pattern is repeated, it remains remarkably constant.

(4) The psychopath on the other hand is likely to have been in conflict with authority throughout his life. He gives his associates the impression that he experiences little anxiety over his misdeeds. Although he often makes convincing protests of innocence, of which, through adept rationalization, he appears to have convinced himself, inquiry generally discloses that he has been in various types of legal difficulties many times before. His disorder seems to permeate his whole personality structure.

(5) A differentiation is of theoretical rather than practical importance in court cases, for few cases in either category are held legally irresponsible. The rare neurotic or psychopath who is held irresponsible is so found because of inability to adhere to the right rather than inability to distinguish right from wrong. The chief pathology in those disorders is in the maladjustment of the personality rather than merely of the intellect.

(6) Psychopaths are frequently military offenders and they have a high representation among the men who are absent without leave, the insubordinates, the malingerers, the sexual offenders, and the alcoholics. Military psychiatrists should, however, exert care so that they do not make chaos out of confusion by indiscriminately labeling all offenders psychopaths. It is a diagnosis that should be reached on the basis of positive criteria rather than by the mere exclusion of other disorders. Men so diagnosed should have chronically displayed since childhood behavior that was in conflict with the social standards of their communities. They should have exhibited an inability to achieve success in life from well sustained effort. Most psychopaths are markedly unstable individuals with pronounced temper responses and a hedonistic disregard for the rights and interests of others.

5. The Value of Punishment as a Deterrent

a. The psychological force that the conviction of an offender will have in preventing others from committing an offense is very difficult to evaluate. That crimes would increase in the Army and in civil communities were there no policemen or courts is obvious, but the degree of increase and the types of offenses that would most greatly multiply is unknown. It is important to remember that there are many, and probably much stronger, factors than the threat of punishment which keep men from committing crimes such as conscience, religion, loyalties to family, the need for group approval, *et cetera*.

b. While it is recognized that many psychopathic and neurotic offenders are not responsive to the deterring effect of punishment, punitive measures are, nevertheless, a necessity. On the other hand, there is a too ready tendency on the part of certain medical and line officers to adopt harsh and repressive punishment as a disciplinary panacea rather than admit that the misbehavior in question may be the result of poor leadership.

6. Suggestion for the Pre-trial Psychiatric Examination of an Accused

In examining a patient for the purpose of obtaining data upon which expert testimony before a court-martial may be based the following suggestions will be helpful.

a. The history and examination should not be stereotyped, and the emphasis will

vary from case to case. Thus a man charged with being AWOL and a man charged with striking his superior officer should be considered from different vantage points.

(1) In the former cases particular attention should be paid to school truancy, running away from home in childhood, length of time on each civilian job, tendency to evade responsibility in civilian life, etc.

(2) In the latter cases unusually extensive inquiry should be made in regard to head injuries, encephalitis, methods of parental discipline, attitude toward authority, temper responses, boyhood and adult street fighting, etc.

b. It is essential that the psychiatric examiner be furnished with all information pertinent to the case at the time of referral for examination. This should include:

(1) A statement of the charges against the individual.

(2) Information in regard to the circumstances surrounding the offense.

(3) Statements concerning his past and present behavior, his efficiency as a soldier, and any abnormalities of behavior including his habits as to the use of drugs and alcohol.

c. An account of his previous offenses and convictions. As far as practicable the psychiatric examiner should personally interview all individuals who can furnish important information about the behavior of the accused before, during, and after his offense. Written statements secured by the investigating authority or counsel are of far less value than personal interviews, because obviously the intelligence and the degree of objectivity of the witness cannot be effectively evaluated through the medium of a report. Moreover, such statements generally fail to contain the information which is most important for the psychiatrist. It is desirable, but less essential, that the psychiatrist, or an assistant trained by him, should personally review hospital, company, and other military records rather than accept the usual abstract submitted from these sources.

d. When time permits, statements or records should be obtained from school, employers, police departments, and other community agencies as to the patient's behavior outside of the Army. In cases where such information is deemed vital to a satisfactory understanding of the case a request should be made by the psychiatrist to the Trial Judge Advocate for the necessary delay.

e. Before examining an accused the psychiatrist should make clear to him the scope and purpose of the examination. The accused should be informed that the examiner is neither for him nor against him and that the examiner's purpose is to obtain the truth upon the basis of which he may express a just opinion before a court-martial. Since evidence of an accused's previous convictions by a court-martial may not as a rule be presented in court prior to its findings as to the accused's guilt or innocence, and since his civilian criminal record may not be presented, except in special instances not here relevant, the psychiatrist should seek to avoid any reference to such previous convictions in his testimony.

f. It is unwise to perform the psychiatric examination in the presence of other interested parties, particularly those who are to serve as counsel. In the presence of others it is very difficult to establish good rapport with the patient.

g. A relatively complete neurological examination should be performed. In obtaining a medical history stress should be laid on head injuries, convulsions, amnesia, automatic behavior, periods of unconsciousness, syphilitic infections, and the use of alcohol and drugs.

h. A detailed school history should be obtained, particularly in regard to learning progress, deportment, truancy and popularity. The work history should be detailed, listing types, duration, and number of jobs; reasons for changing jobs; presence or absence of friction with employer and fellow employees; earning capacity; references from former employers; attitude toward treatment received at work; and extent to which alcohol has interfered with earning capacity.

i. Wherever possible a trained psychologist should examine the patient and furnish the psychiatrist with his evaluation of the patient's intelligence level and whether or not there is evidence of intellectual deterioration.

j. The family history should contain an account of mental disorder, nomadism, unusual degree of temper response, criminalism, and alcoholism. A detailed account should be recorded of the family atmosphere during

childhood, including friction between parents, favoritism toward particular children, economic standards, and social position in the community.

k. The account of the patient's personality make-up should routinely contain a detailed analysis of his interests including sports, gambling, saving of money, church, smoking, reading, and movies. A detailed sexual and marital history should be obtained including use of prophylaxis, age at which intercourse began, attitude toward homosexuality, and amount of masturbation. The history of previous arrests, even though they resulted in acquittal, should be detailed. Use of, and tolerance for, alcohol and drugs is important. The effect of alcohol and drugs on the behavior of the individual should be elicited. The account of temper response should be full, including the types of situations which provoke irritability, resentment, and temper, and the way in which these manifest themselves. A full account of the patient's degree of sociability is important, whether he belonged to teams and clubs of various types, or likes to be alone or with people, and what type of companions he seeks in and out of the Army.

l. A detailed account from the patient of his Army adjustment is of the greatest importance. Particular emphasis should be placed on disciplinary actions, promotion and demotion, reaction to discipline, interest and aptitude in his various assignments, attitudes toward separation from home, overseas service, and combat. An effort should be made to evaluate the patient's motivation.

m. The patient's account of the crime with which he is charged should be full. The events immediately preceding the alleged offense should be detailed. His immediate and later reactions are important including the effect on his sleep, appetite, *et cetera.*

7. Persons who may be Designated to Carry Out Psychiatric Examinations

The Manual for Courts-Martial, 1928, indicates those persons who may be appointed to make pre-trial sanity examinations, as follows:

> An appointing authority may in his discretion, suspend action on the charges pending the consideration of the report of one or more medical officers, or the report of a board convened under AR 600-500, in a case where that regulation applies and it is practicable to convene such a board. (Par. 35c, Page 26, MCM, 1928.)

It is well to point out that the board convened under 600-500 is primarily an insanity board convened for the examination and disposition of patients in the Zone of the Interior. Boards of medical officers, at least one of whom should be a psychiatrist, may be convened under AR 40-590. It is extremely important to remember that psychiatric examinations for mental responsibility should be made as soon after the commission of the offense as is possible. Often, because of the need for prompt action, it may not be practicable to convene a board. Under such circumstances a psychiatrist or other qualified medical officer may make the examination.

REVIEW OF NEUROPSYCHIATRIC CASES IN THE SOUTH WEST PACIFIC AREA

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The purpose of the present paper is to review 1000 consecutive cases observed on a neuropsychiatric service in a rear installation of the Army in the South West Pacific Area. Such a review raises many questions which cannot be answered with finality at this time. However, a survey of the material as it appears from an overseas perspective may perhaps serve as a starting point for further investigation. It is not intended to furnish a detailed description of the various conditions but rather a general orientation which may reveal certain trends and offer a basis for comment and interpretation. For reasons of security some of the statistical data will be omitted.

Psychoses.—The psychotic group did not include patients with transient toxic states but only those with more deep-seated reactions. The group was larger than any of the others. This does not mean that psychoses are the commonest type of psychiatric disorder in the Army, since the present observations do not take into account many patients with milder conditions, such as psychoneuroses, who are successfully treated and returned to duty without the need for hospitalization in rear areas.

The age of onset ranged from 18 to 42 years, with an average of 24 years. Soldiers at both extremes of this age range seemed more vulnerable to psychotic disease. The average duration of military service was 2 years. There was no obvious relation between duration of overseas service and susceptibility to mental breakdown. In the majority of instances the illness occurred under combat conditions. This may be of little significance, since the proportion of combat to non-combat personnel was not determined. A history of psychotic attacks prior to induction was elicited in less than 5 percent of the group. A tainted family background and minor indications of instability were noted in a considerable number of cases, but the historical data were insufficient to warrant any statistics on such factors in the group as a whole. However the great majority of the patients had been good soldiers, only a relatively small number standing out by reason of chronic maladjustment in the Army.

The onset appeared to be sudden in over 80 percent of the cases. This figure is probably only a rough approximation. Thus, in some instances where the development of the disorder could be traced, the overt symptoms began abruptly, but they were preceded by prodromal disturbances, such as increasing anxiety, dissatisfaction, uneasiness and uncertainty as to the future, loneliness and nostalgic preoccupation. The early symptoms were sometimes mistaken for neurotic manifestations. Later, simple wish-fulfilling tendencies in the form of nostalgic hallucinations and disguised or undisguised guilt feelings over failure to perform military duty were often present. Suicidal attempts were common in all types of psychosis. Thinly concealed homosexual reactions were occasionally observed, chiefly in a schizophrenic setting. The commonest disorders were dementia præcox and unclassified psychoses, which occurred with approximately equal frequency.

Unclassified psychoses comprised a heterogeneous group presenting pictures which could not be fitted into well established categories in the time available for study. In all probability, many of them were schizophrenic reactions. The term was also applied, in accordance with army usage, to cases of psychopathic personality with psychoses developing after more than 6 months of military service; few cases of this type were encountered. It is possible that the group included a small number of atypical toxic or organic psychoses which were not recognized.

The impression was obtained that some of the unclassified psychoses were essentially acute emotional reactions brought on by intense physical and mental stress. Thus, they may represent "war psychoses" analo-

gous to the acute war neuroses. They were apt to begin abruptly with marked excitement, restlessness, bewilderment or agitation dominating the picture. Sometimes indications of regression to infantile levels of behavior were noted. The patients were usually inaccesible and thinking was too fragmentary to reveal significant trends. There was no convincing evidence pointing to confused or delirious toxic states. The prognosis appeared to be good, but final evaluation must await a more favorable opportunity for prolonged investigation.

In this connection, the question arises whether some of the conditions regarded by Grinker and Spiegel as severe neurotic states with deep regressions were really psychotic disorders. The discussion does not refer to the frequent amnesic and panic states of a transient nature, but to the more prolonged excited states depicted in the foregoing paragraph. In my opinion such conditions can be classed as neurotic only by broadening the conception of neuroses to such a degree that their limits can no longer be defined. The loss of contact and disturbances of thought seemed too profound to be based on neurotic mechanisms. The occurrence of marked anxiety or fear in these cases does not necessarily indicate a neurosis, since a variety of psychoses may be associated with such emotional disturbances. Nor does the fact that the patient may recover promptly exclude a psychosis.

Among the schizophrenic psychoses, mixed types occurred with greatest frequency. Their preponderance was no doubt a reflection of the fact that the cases were usually studied at an early stage, before the various forms of reaction had become clearly defined. However, the schizophrenic psychoses did not differ essentially from those observed in civilian practice, though a stormy course and acute paranoid disturbances were more common. While prolonged observation will be needed to determine the ultimate outcome, the impression was obtained that the prognosis might be more favorable than that of schizophrenic disorders among civilians. Simple types of schizophrenia appeared to be more common than in state hospital practice. Under peace-time conditions, persons with a markedly schizoid make-up or with mild forms of simple dementia præcox often avoided outstanding difficulties by finding special niches for themselves. Such persons are apt to escape the screening-out process at induction, and they readily break down under the stresses of military service.

Manic-depressive psychoses did not present any special features with the exception that manic attacks predominated over depressions in the ratio of 2.3 to 1. In almost all instances the patients were experiencing their first attacks. The impression was gained that in proportion to schizophrenic psychoses, manic-depressive disorders were less frequent among military personnel than among comparable civilian groups. The remaining psychoses included a few cases of psychosis with mental deficiency and a few with organic defects, chiefly post-traumatic mental deterioration. One case of dementia paralytica was observed.

Malingering of psychoses was decidedly uncommon. It occurred chiefly but not invariably in soldiers whose past records pointed to psychopathic traits of personality.

Conservative measures of treatment were used. Where possible, psychotherapy of a simple type was given. Occupational and recreational therapy, particularly athletic activities, were of great help. Sedative medication and wet packs were employed freely. Good nursing care was stressed. Shock treatment was not instituted. Because of the difficulty in accurately sizing up the various types of disorders, its use could readily become indiscriminate. It is true that states of excitement can often be promptly controlled with convulsive therapy, but it has been my experience here that they usually clear up readily with more conservative procedures.

Psychoneuroses.—The various types of psychoneurosis and their great frequency are well known, so that only a few points will be mentioned. A preponderance of anxiety states was noted in agreement with reports from other areas. However, mixed types were almost as common; they were usually characterized by symptoms of anxiety with depressive or hysterical components, or both. Hysterical disorders, reactive depressions and hypochondriacal states were much less frequent, and other types of neurosis were decidedly uncommon.

Certain statistical data were not available

in all cases, so that the figures in this paragraph were obtained from approximately 60 percent of the group. The average age of onset was 27 years and the average duration of military service 2-6/12 years. The onset was regarded as sudden in 75 percent of the cases, but this figure included a relatively small number in which the illness was really an acute exacerbation of an older process. The disorder occurred under combat conditions in 70 percent of the cases.

In many instances the overt symptoms were preceded by a period of increasing uneasiness and tension. Some of the patients had been through two or more campaigns, and during each succeeding campaign they had experienced increasing anxiety, though it had been adequately controlled previously. The anxiety was generally diffuse in the acute cases, and transient amnesic episodes were common at the start. In more chronic cases, the anxiety was often associated with cardio-vascular or gastro-intestinal symptoms or other psychosomatic phenomena. Conversion hysteria tended to occur in soldiers below the average level of intelligence and it often followed minor injuries.

The etiologic factor of immediate importance appeared to be mental and physical stress associated with overseas service. A considerable number of patients failed to show evidence of previous neurotic vulnerability. For the most part, these patients broke down under circumstances which exceeded the ordinary stresses of overseas service. According to a recent technical memorandum issued in this theater, such disorders would now be diagnosed as "situational reaction." The question arises whether or not they are true neuroses. Undoubtedly they differ from the neuroses familiar to us under peace-time conditions. However, it is my impression that the underlying mechanisms are of a neurotic nature. The differences are probably due to the fact that self-preservative drives are largely implicated, whereas more complex drives and conflicts, particularly those of a sexual nature, are concerned in the neuroses of peace-time. In approximately 60 percent of the group, a history of neurotic traits prior to induction was obtained, and some of the chronic disorders were merely continuations of neuroses dating from civilian life. Soldiers in the older age groups and those overseas for long periods seemed more susceptible than the others. Impairment of morale was a factor in many cases.

According to Grinker and Spiegel, war neuroses cannot be malingered. This statement is probably correct for the acute conditions to which they referred, but it does not hold for the cases which become chronic or are chronic from the start. Simulation of such disorders is probably more common and more difficult to detect than simulation of psychoses. The impression was obtained that outright malingering was infrequent but that conscious exaggerations of, or additions to, the neurotic picture were factors in a considerable number of cases. Some of the manifestations of this tendency were: too emphatic insistence that the disability was total and permanent; complete intractability to all forms of therapy; unwillingness to exert any effort in following a program of treatment; resentful and uncooperative tendencies; a degree of anxiety insufficient to account for the apparent severity of the disability; and a lack of the expected correlation between the severity of the precipitating factors, the previous intactness of the personality and the fixity of the presenting symptoms. Interviews conducted under sodium amytal narcosis were of diagnostic help, revealing inconsistencies between the underlying trends, the degree of anxiety and the chief complaints. Of course the evaluation of each case must be based not on any single criterion but on an analysis of the whole picture.

The response to treatment was favorable in the majority of cases. Of the whole neurotic group, 69.1 percent of the patients were returned to duty in this theater and 7.3 percent were transferred to other sections of the hospital for disorders that were not of a psychiatric nature. The prognosis was most favorable in acute anxiety states arising under combat conditions. The patients returned to duty were, in the great majority of instances, recommended for assignment to non-combat units. Patients who have had psychiatric disturbances serious enough to require hospitalization in rear areas can rarely be expected to adjust to the stresses of combat.

These results were obtained by simple and

well known therapeutic measures, which may seem too superficial to warrant discussion. Nevertheless, they appeared to be effective. Individual psychotherapy of a simple type was given, including explanations of the nature of the symptoms. The discussions were geared to the soldier's intellectual capacity and emotional make-up. From the beginning the patients were impressed with the idea that they could be restored to a state which would enable them to perform useful service. Factors of morale and conscious attitudes, if present, were analyzed frankly. The opportunities for reassignment to duties in keeping with their capacities were discussed. Group psychotherapy was not employed. Occupational therapy was used extensively and recreational activities were encouraged. The program was designed to place the patients, so far as was compatable with medical considerations, in situations of a type familiar to them in military life. Thus, stress was laid on useful and productive work, such as carpentry and maintenance and improvement of the hospital area. More complex crafts were available for a limited number of patients. It was considered important to determine in each case the most suitable type of work and the time allotted to it, which might vary from half an hour a day up to a full day's work, and to explain the value of constructive activities in restoring mental stability.

Sedation was used freely, sometimes to the point of prolonged sleep in the more acute cases. Sodium amytal or sodium penthothal narcosis was frequently used for interviews, but the therapeutic results were not commensurate with those reported by Grinker and Spiegel. In my experience this procedure has been of greater diagnostic than therapeutic value.

Simple Adult Maladjustment, Constitutional Psychopathic State and Other Psychiatric Disorders.—The cases falling within the first two categories were relatively few in number. However, the present observations are not necessarily a measure of their frequency throughout the theater, since such cases may be handled without sending them to a rear installation. The problems created by psychopaths in the Army are too well known to require comment here. Simple adult maladjustment was decidedly more common than psychopathic states. The term is conveniently used for cases of maladjustment based on conflicts with the external situation. The conflicts are at a superficial or conscious level. The picture is usually characterized by poor adaption to work and somatic complaints, which may appear to be completely disabling. It may resemble a neurotic disorder, but genuine anxiety is lacking and the complaints do not fit a neurotic pattern. There is usually a distinct undercurrent of sullenness and resentfulness. The difficulties are regarded as expressions of a lack of adaptability due to inadequate traits of personality, which are not outspoken enough to constitute a psychopathic personality. The patients are able to adjust fairly well under ordinary peace-time conditions, but their weaknesses begin to show up in the face of more stringent demands of military service. The ultimate disposition of all these cases is through administrative channels.

Only a few examples of mental deficiency and of habit disturbance, such as enuresis, were observed. Judging by the number of patients requiring hospitalization in a rear zone, such conditions are of little importance in this area.

Neurologic Disorders.—Neurologic diseases accounted for a small proportion of the whole group. Idiopathic epilepsy was the commonest disorder, accounting for more than one-third of the neurologic cases. The criteria for diagnosis were strict, so that this figure is probably an underestimate of the frequency of epilepsy in the area. The pitressin hydration test was of diagnostic value, producing seizures in approximately 20 percent of the cases. In most instances the convulsions had apparently begun after induction.

Paralysis of single muscles or muscle groups was relatively common, the peroneal nerve being affected with greatest frequency. These processes were regarded as neuritic or radicular. Their etiology was uncertain. They were apparently not traumatic in origin. The possibility that they were toxic in nature should be considered. Also the question might be raised whether they were related to progressive muscular atrophy, rare examples of which were encountered. In contrast to the frequency of such disorders,

no cases of multiple sclerosis were observed, a point which seems surprising in view of the number of troops in susceptible age groups.

COMMENT

Judging by the present investigation, psychoses are responsible for by far the largest number of soldiers requiring evacuation to the United States on neuropsychiatric grounds. These observations are contradictory to those of Grinker and Spiegel, who claimed that actual psychotic breakdowns were extremely rare in the Tunisian Campaign.

Undoubtedly, living conditions as well as combat in tropical regions of the South West Pacific Area pose new and unique problems of adjustment. Many soldiers feel that they are entering a remote corner of the earth in which vaguely defined mysteries and dangers are lurking. They find the climate unpleasant and taxing. Apart from the heat and humidity, the constancy of weather conditions becomes monotonous in itself. A tendency to listlessness and sluggishness is common, particularly after prolonged residence in the area. Recreational outlets are limited in type. The remoteness from home, the isolated life and total lack of familiar sights, such as built up, civilized settlements, are apt to have a depressing effect. To many soldiers fear of tropical diseases constitutes a mental hazard, even though there may be little basis in fact for such fears. To others, the all-encompassing jungle takes on a menacing aspect. All these circumstances foster nostalgic feelings which tend to increase in the course of time. Such factors apparently provide a fertile background for mental breakdowns.[1]

The question arises whether measures can be devised to lessen the frequency of psychoses. Unfortunately, their prevention is fraught with problems which have not been solved either in the Army or in the civilian population. So far as my observations were concerned, there was nothing to suggest that defective morale played an important rôle in the origin of psychoses. Can one screen out a greater number of potential psychotics from troops bound for overseas destinations? Few of the cases reported in this paper could have been anticipated with any degree of certainty. With the exception of a small group, the patients had been average or better than average soldiers. It is probable that if every soldier could be given psychiatric study (a procedure which cannot be considered within the realm of practicability), a small number of cases could be eliminated on the basis of a tainted background and indications of poorly balanced personalities. In most instances, however, to predict the occurrence of a psychosis in any given individual would require prophetic powers which we do not possess.

In the psychoneuroses one may anticipate more favorable results with respect to treatment as well as prophylaxis. Many neurotic soldiers can be restored to useful service at all levels of evacuation from forward to rear areas. The observations tend to confirm the impression that in many cases the psychogenic mechanisms are not deep-seated.

Henderson and Moore have pointed out that some neurotic patients have an attitude of defeat and do not want to get well, so that their symptoms acquire great secondary importance. The authors state that these patients are the ones "who are always full of complaints, utilize and magnify their symptoms, and are perfectly hopeless so far as any use in the war effort is concerned. The attitude of the patient is more important than his symptoms, and it determines whether or not he wants to fight." We are dealing here with factors of morale and conscious attitudes which are of decided importance in the origin and course of many neuroses. My observations suggest that some of these cases are not hopeless. Military authorities have recognized the importance of building up and maintaining high morale by developing a program which utilizes principles of mental hygiene in broader military functions of command and leadership. The program accomplishes good results, but in some cases it is difficult if not impossible to inculcate men with qualities, such as emotional maturity and social responsibility, which they should have acquired in the course of their up-bringing. Thus, in a sense the frequency of neuroses among military personnel may be attributed to faults in our

[1] Soldiers recognize these influences, jokingly using expressions such as "going tropical" and "jungle-wacky" as synonyms for mental disease.

social structure which have been revealed by the stresses of war and which would require for their correction a long-range program directed to the whole population and not simply to military personnel.

The question arises whether a greater number of potential or actual neurotics could be screened out before they proceed overseas. Obviously, a screening out process is occurring from pre-induction days on, yet neuroses remain as the commonest of all neuropsychiatric disorders. It is my impression that further efforts along these lines would be of limited value for a number of reasons. About 60 percent of the patients showed neurotic traits prior to service overseas, but many of them had never desired and had never needed medical attention for such tendencies. To discover these cases would require procedures which seem impracticable from the point of view of time and personnel available. Furthermore, it is frequently impossible to predict how a given person with neurotic tendencies will react to future situations. The need for manpower and its conservation in the Army is of paramount importance, and there is a great variety of military activities which can provide work suited to each person's capacity. Many actual and potential neurotics are performing high-grade military service, and they will undoubtedly continue to do so for the duration of the war.

SUMMARY

A study was made of cases observed on a neuropsychiatric service in a rear installation of the Army in the South West Pacific Area.

The psychoses were of greatest importance from the point of view of permanent loss of manpower. The possibility that environmental conditions peculiar to the area played an etiologic rôle was discussed. Atypical pictures were common. The impression was obtained that some of the acute cases might be essentially severe emotional reactions brought on by intense stress, perhaps representing "war psychoses" analogous to the acute war neuroses.

Among the psychoneuroses, anxiety states occurred with greatest frequency. In the acute conditions the stresses associated with combat played the most important etiologic rôle. In the more chronic cases previous neurotic tendencies were significant factors. Conscious attitudes and problems of morale influenced the picture in a considerable number of cases. Of the whole neurotic group, 69.1 percent of the patients were returned to duty.

Measures which might lessen the frequency of psychoneuroses and psychoses in the Army were discussed.

Brief mention was made of less common psychiatric conditions and neurologic disorders.

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ENVIRONMENT

An Adjunct in Treatment of Combat Fatigue [1]

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Emotional disorders induced by combat have been widely discussed in the past few years and their treatment has been a matter of much interest. Referring specifically to naval personnel, these disorders have been treated by various methods, group and individual therapy, and in various facilities, such as evacuation hospitals, aboard ship, at naval hospitals, and finally at special convalescent hospitals(1, 2, 3, 4, 5, 6, 7). Each facility presented its own peculiar problems, methods and environment in which treatment was rendered. In this presentation, I propose to outline how combat-induced emotional disorders were treated in an activity confining naval offenders, whose offense usually was unauthorized absence and missing ship.

It is well known that men with combat fatigue and other combat emotional disorders often become involved in disciplinary offenses. The basis for their offense is their emotional turmoil(8). Men with profound anxiety may be precipitated into a panic reaction at the thought of returning to the source of their anxieties (and literally run away from their ships). Those with marked tension often seek relief in alcoholic beverages and the quite common lessened tolerance and release of inhibitions may lead to a naval offense, usually a futile attempt to run away. Men with irritability, depression and guilt feelings may be involved in personality clashes leading to delinquent behavior. Men who have hostility and resentment features as a prominent part of their clinical picture, are often irritant foci and precipitants of brawls aboard ship or on the beach. Many of the offenses committed are tried by general courts-martial and many offenders are confined to disciplinary activities for varying periods of time.

At this particular activity, devoted to retraining selected naval offenders, approximately 1 percent are men with clinically diagnosed combat fatigue disorders(9). Included among them are men who present symptoms that are more strictly labelled "cruise-weary" or "operational fatigue"; the fraction of the 1 percent they total is very small. The term "cruise-weary" was applied to men who appeared to be physically and emotionally exhausted after a prolonged cruise with hardships, battle, monotony and lack of recreation. Of the sizable total number of the classical syndrome, combat fatigue, only a very few men have had to be hospitalized for survey to limited duty after completion of their confinement period. All the others, under our treatment regimen, appeared to be fully fit for active duty with the fleet upon release.

This activity afforded an unusual opportunity to manipulate and order an environment to best suit the working out of emotional problems and the needs of a particular personality. Basic, too, is the fact that the overall atmosphere here was considerate, stable and reassuring. Having had experience with group therapy and with individual therapy of combat emotional disorders, it was decided to investigate the response of such men in a controlled environment and in minimal contact with the psychiatrist. All incoming men at this activity had to be interviewed by the psychiatrist. It was decided to spend as much time as necessary with the first interview, in problem cases, to establish understanding, security and rapport, and then follow the subject at monthly intervals unless special problems arose. At this facility the men served sentences that averaged from 3 to 6 months. As an integral part of the industrial and educational programs, were many features such as reservation working parties, nets, clerical jobs, boiler watches, machine shop work, instructor's aides, galley, tailor shops, schools for basic education and training, etc. The retrainee was closely supervised in some

[1] The opinions and assertions contained in this paper are the private ones of the writer, and are not to be construed as official or as reflecting the views of the Navy Department or of the naval service at large.

activities, and in others, much individual latitude was allowed. Responsibility, status and recognition were to be had in still other activities.

As mentioned above, men were labelled "cruise-weary" if they presented symptoms of physical and emotional exhaustion after a grueling tour of sea duty. They were fatigued, tense, and stated they felt that they were going "crazy" aboard ship because of the monotony and lack of recreation. Leave was usually considered insufficient, no matter what the duration, and these men usually remained over leave or upon return to the ship promptly went AOL. These men were basically non-delinquent, had rendered valuable naval service, were not particularly troubled by combat experiences, but felt resentful and frustrated that they "had not been given a transfer" or "sufficient leave", or "shore duty" even while admitting the dire necessity for trained seamen aboard ship and that they had not exhausted the legitimate methods of securing transfer. While frustration and resentment played a rôle in some cases, the outstanding feature was the evident general exhaustion, and a loss of perspective. They viewed their naval future in pessimistic fashion. Often they felt their "number was up." They frankly stated that the brig was a welcome relief and that they hoped to get their "health" back. These men displayed immature traits and their immaturity was reflected in their judgment.

The treatment consisted of an intensive interview, in which the exhausting factors and the frustrating experiences were clearly pointed out. The influence of fatigue and emotional tension on body physiology and overall perspective was discussed. Also, the possible constructive solutions that might have been attempted were explored. Finally, depending upon the capabilities and needs of the individual, a regimen was outlined for the man and a billet suggested. For example, a signalman might feel he had never received proper recognition, despite a long period of service. This could be granted him as an instructor's aide in the signal classes. An outdoor billet might be suitable for one whose main interest was to "build myself up." Basic schooling might be indicated in another individual who felt inadequate because he lacked education. All were urged to participate in certain voluntary athletic and recreational programs and were indeed expected to as part of their regimen.

Case I. W. L. H.: "Cruise-Weariness"

This 22-year-old male, a second class petty officer, had had approximately 26 months of active duty prior to his general court-martial offense of missing ship. He had approximately 23 months of sea duty and participated in many engagements in the Pacific and was cited for expert firing. In January, 1945, he committed one AOL offense of 9 days and later that month another offense of 9 days and missing ship. The stated reason for the offense was that he had gotten drunk, "shacked up," and started for home when picked up by the SP. Past history revealed a parental situation marked by conflicts. He himself had always tended to be a tense individual.

An interview with the seaman revealed that the combat actions in the Pacfic had made him tense and nervous. "Many of our squadron got it. We always came through. Have a feeling we are about due—on borrowed time now so to speak." On examination, he was courteous, cooperative and tense. He indicated no personality change or any of the symptoms ascribed to the syndrome of combat fatigue, other than tension. He spoke at length of the incessant standing of general quarters, the long stretches of inactivity, the lack of recreation and liberty facilities in the zone where his ship operated and how he just had not been able to relax. When he returned to the States he felt so emotionally tense and so generally exhausted that he sought some relief in liquor. But that was not enough. When his ship was about to sail, he simply felt he could not return aboard at that time to undergo the alleged deprivations, or face expected disaster. He was so tired that he felt he had lost all perspective. He wasn't afraid of combat duty, he was just too fatigued to be positively motivated. He had made no attempt to secure a transfer or discuss his problem with the medical officer. His handling of his problem was not mature or with good judgment as he now realized. His symptoms and their origin were discussed; a regimen outlined, and he was followed monthly until his release. His was a general work detail. At release time, he was considered fully fit for duty, an opinion in which the seaman concurred.

At the required initial interview, men were detected with all symptoms usually ascribed to the combat fatigue syndrome. Irritability, personality changes, nightmares, startle reaction, lowered tolerance to alcohol, depression, guilty feelings, marked somatic complaints, hostility and resentment were commonly noted. In the average case anxiety symptoms were dominant, with startle reaction, irritability, seclusiveness and night-

mares. Symptoms usually developed after prolonged combat. These men with anxiety literally ran away from their ships; they felt they could not return and felt that they were "cowards" and "yellow."

Such individuals were questioned about their combat experiences and the discussion gave a good indication of the degree of tension under which the man labored. Then, in a didactic, forceful, yet reassuring manner the fact of individual differences and development was simply explained to account for the fact that some developed "war nerves" and others did not. Next, it was emphasized that the seaman was emotionally upset or wound up, not that he was a "coward." The universal instinct of self-preservation was discussed and the universality of fear and how great a threat to personality integrity is combat. Then the genesis of anxiety symptoms as a state of being wound up or the body being at constant general quarters and as a bodily protective device was explained with liberal illustrations (often scientifically inaccurate, but graphic). Finally, a formulation of the dynamics of the man's offense was attempted; *e.g.*, evasion of the vehicle that is, also leads, to the sources of his anxieties. This didactic interview was repetitious and constantly reassuring in that it treated the entire matter as an ailment and did not provoke guilt reactions.

When it was felt that the man had at least a reasonable understanding that his was an emotional illness, it was explained that the environment, even though this was a discipilinary activity, was stable, considerate, and that he would gradually "unwind", feel more sure of himself, and, in general, feel better physically. It was emphasized repeatedly that his symptoms would gradually disappear as he unwound. He was advised *not to discuss* his battle experiences, to avoid combat movies, to force himself to engage in athletics and recreational activities. He was asked what type of billet he felt he could handle. Usually one without much responsibility and without undue monotony was requested. The billet eventually assigned took into account his desires and also his needs as indicated by the interview. No man was permitted to leave the interview until the psychiatrist felt that he had some understanding and a feeling of security. The man was then followed about once a month and one interview was timed at about the date he entered "duty company." This was an intensive preactive duty training period occupying the last 8 weeks of a man's sentence. It is during this period that many morale-combat films are displayed. The follow-up interviews determined progress and afforded a feeling of security. Problems were handled as they arose, billet changes made when advisable and at all times the man was encouraged to speak and ventilate freely on anything that might be troubling him. The following case illustrates a quite common reaction. Often, prior to release, there is a transient recrudescence of anxiety and tension, induced by the imminence of return to active duty and by "not knowing" what type of ship or duty was to be assigned them. As soon as they knew, tension and anxiety dropped; they no longer anticipated and conjectured.

Case II. O. J.: Combat Fatigue with Anxiety Symptoms Dominant

O. J., a 19-year-old S1c, product of a stable, well-knit, large family, and with a good school and work record prior to entry in the service in 1942 at age 17. He had almost 20 months of sea duty aboard a destroyer. His first ship was sunk by subs in the Mediterranean after about 10 months of duty. His second ship was damaged with many casualties in the invasion of France. His offense, the first one since enlistment, was an AOL and missing ship.

He explained to the interviewers that his nerves were all "shot" after repeated combat experience. He was a gun captain and figured that if he got in combat again he would lose his nerve and set a bad example for his men. When first interviewed, he showed marked symptoms in that he startled easily, was extremely tense, irritable, and demonstrated a personality change which he recognized and which was substantiated later by data from an outside source. He was given an explanation of the why of his symptoms, assigned a billet where he could be alone a good deal, ordered not to attend the combat movies and followed about once monthly. Toward the last 3 weeks of his confinement he became markedly tense, irritable, unstable and thought he was going to "blow his top." A promise was exacted from him to come to us prior to any "blowing up" (it's surprising to me how controlled the "blowing up" is when it responds to a promise). He burst into the office several times and ventilated at great length. He was agitated and worried that perhaps he was not ready and that he had not yet unwound sufficiently. This state continued until the date of release when

he learned he was to be assigned to a patrol craft. The marked drop in tension and anxiety was spectacular as soon as he knew where he was going. Ruefully, he admitted he wouldn't have believed he would feel better just as soon as he knew what to expect. Knowing was important; he felt he knew how to handle himself and his duty constructively.

Frequently seen were men with marked somatic complaints as the dominant feature of the clinical picture. Such men were given a careful physical examination and any indicated necessary laboratory studies. If these were negative, and usually they were, the facts were made available to the psychiatrist. The man was first strongly assured that he was not a "goldbrick," an epithet that was all too often thrown at him. He was usually taken aback when told that his complaints were valid and that they undoubtedly existed for him if he was complaining about them. However, unlike other diseases, the examinations were negative. Then it was briefly brought out that combat experiences produced anxiety and that anxiety was often reflected in marked visceral and somatic disturbances. Again graphic illustrations were used to demonstrate exactly what was meant. It was repeatedly stressed that as he "unwound", became less tense and anxious, paid less attention to himself, then, too, his symptoms would fade. In the meantime, he must bear with them, understand why he had them and do all the things the other men were doing. Usually while resistive and sceptical at first, our cases have accepted our explanations and followed our suggested regimen with diligence and success.

Case III. C. O. G.: Combat Fatigue with Somatic Symptoms

This was a 27-year-old seaman, first class, with 3½ years of service and 29 months at sea aboard a battleship and a destroyer. He had seen action in the African campaign and in many of the Pacific engagements. While awaiting new construction, he became embroiled while drunk with a commissioned officer. He was a product of a stable, rural family with a good work record and civil adjustment. He was always a little "quick-tempered." When interviewed here, he complained of severe, incapacitating pain in the right shoulder, pain in the right eye and numerous other minor somatic complaints.

On examination, he presented much bitterness and resentment that he was confined. He required much ventilation of his hostility. He complained bitterly about his various symptoms. A careful medical work-up was, as expected, negative. Mollified somewhat by the consideration shown, he was fairly receptive to the next step. An explanation was given him of the origin of the anxiety and how it could be manifest in somatic symptoms. He was forcefully told that with time and following the regimen outlined for him, he would improve, (a busy work program as a cobbler, athletics, group recreation). He was observed about once a month for 6 months. His somatic complaints reduced as he relaxed. He became proficient as a cobbler, gained status and recognition. Despite the pains in his right shoulder, he never faltered in his work. Prior to release he was quite calm, stable and thanked us profusely because he felt so well. He said he found it hard to believe our predictions and explanations at first. There was no bitterness or resentment present, merely an eagerness to "get going" and "square away" back to duty. Toward the last several weeks of his stay he was one of the NP unit's most enthusiastic proponents.

Some men presented emotional disturbances where the feelings of hostility and resentment were marked. Such men were permitted to ventilate freely. It was pointed out, in addition to the rôle their experiences had in producing tensions, that they felt hostile because they felt they had been let down, unprotected, in trying, anxious situations; that being irritable heightened any frustrations they encountered and increased any resentments felt. They were warned not to ventilate anywhere except in the psychiatrist's office because while he could probably understand, not every one would. It has been found a useful device to protect them against themselves by exacting a promise not to "blow their top" or to do anything drastic without first coming in to see the psychiatrist. All promised; not one has yet failed to keep his promise and not one has been even a minor offender while in confinement. In no case have the resentment and hostility been so marked that positive rapport could not be established. They were receptive to explanations, grateful that they could ventilate freely, that they were "understood," and that they were given security and reassurance. They cooperated fully in working out constructive approaches to the problems bound to face them upon return to the fleet.

Case IV. S. B.: Combat Fatigue with Hostility and Resentment Features

S. B. was a 22-year-old first class petty officer, with 55 months of sea duty aboard carriers and

destroyers. He received commendations for 12 enemy engagements and took part in the African and Pacific campaigns. The present offense of missing ship was the only one in his splendid career. He explained it by stating that the engineer was out to "get" him and "I knew he would bust me and so I figured I had nothing to lose by leaving the ship." Psychiatric examination revealed an individual who was tense, irritable, markedly sensitive, and with a strong core of resentment and hostility. The latter was directed against those who had not been through what he had or did not understand how he felt, or had not as much experience in combat as he had. He could talk, but how could others who hadn't felt what he did, talk! This was the basis of his difficulty. During his brief stay he was permitted to ventilate and he gradually gained understanding how badly he was using himself and how his resentments and hostility were coloring his judgment, perspective and his personal relationships. The dynamics of his hostility were briefly pointed out. At no time was a direct attack made on his resentments. Such a procedure has, in the past, been found to exaggerate the resentment reaction. He rapidly stabilized and although humiliated by the confinement and rate reduction he left with every positive intention, much positive motivation, and a good understanding.

While many men displayed mild depressive features only one presented a marked picture of depression with tension and anxiety features. This man was carried along for a while in a closely supervised activity and was seen daily. An unfortunate incident threw him into a stupor state which required hospitalization. His case is presented because of the marked personality disturbance when first seen and the extremely unhappy response to anxiety-producing stimuli. This was the only case that required hospitalization.

Case V. W. M. M.: Combat Fatigue with Marked Depression

W. M. M. was a 23-year-old seaman who had 14 months of sea duty aboard a minesweeper that was in considerable action in the French invasion and finally was sunk with many casualties. The man was from a non-delinquent, large, coal mining family, always a little nervous, and an occasional drinker. His offense was an AOL and explained by him as "I was too nervous to do duty aboard a minesweeper." On examination, he was tense, nervous, depressed and tearful. His answers were monosyllabic; his face was held averted from the examiner. He displayed the startle reaction, spoke of vivid, catastrophic dreams, explosive temper outbursts, heavy drinking and irritable behavior. There were no psychotic phenomena. He displayed marked guilt feelings and feelings of cowardice. He was placed on an outdoor, closely supervised detail, kept very busy, and did well for about a week during which he was seen almost daily. He then inadvertently attended a combat film, became so upset that he ran from the room in a panic, and when brought to the psychiatrist was in a veritable stupor state. Just at that moment, an electric siren went off and the subject became almost maniacal in his fear and excitement, then reverted to a stupor-like state. He was markedly depressed and mumbled suicidal threats. It was difficult to make or hold any contact with him. He was hospitalized.

As noted above, one follow-up interview was timed at about the date the man entered duty company. At that time he was asked whether he felt he could witness combat films. All usually answered that they would try, which was desired. With just two exceptions, all managed to withstand the combat films without more than a transitory feeling of tension and upset, which promptly subsided. The exposure and reaction of these men to the films was a good test of how much progress in stability they had made. As is well known, men with combat fatigue avoid the movies and anything remotely suggesting combat in the way of films.

What was surprising and gratifying was that none of the men treated were involved in any infractions of the command's regulations, despite their tensions, irritability and hostility. This was not only because they were better controlled, but also because of the understanding and security afforded them. The strong personal physician-patient relationship, despite the infrequent meetings, provided a sufficient brake, and positive incentive, even to the men with marked hostility feelings. An important and intangible factor was that men who had been in combat felt a certain pride in cooperating and in themselves that helped in their adjustment.

No attempt was made to employ group therapy as had been done at another facility with good success(7). The insight, security and understanding imparted in one comprehensive interview, the subsequent infrequent follow-ups maintaining rapport and measuring progress, were the only contacts with the psychiatrists. It was felt that time, removal from foci of anxiety (ship, combat), a stable, orderly, active naval environment, adjusted to individual problems and needs, plus athletics and recreation would provide

the necessary milieu for the man to stabilize, reduce his tensions, resolve his anxieties and ventilate his hostility. This was accomplished in all but a very few cases, who required survey because of the continued severity of their emotional disturbances. All the other men were judged fit to return to duty with the fleet.

Conclusions

It has been demonstrated how even with a disciplinary activity as the environment, combat-induced emotional disorders will respond without any excess of psychiatric therapy, without group therapy, other than that afforded in group activities, and without special therapeutic measures. All that was required was to afford the individual reasonable security and understanding, have him accept his illness and give him a measure of insight into its dynamics. This has been accomplished in one comprehensive, intensive interview. Then, time (most men were present at least 3 months), the controlled, stable, adjustable environment, and infrequent follow-up interviews do the rest. The environment must be a stable one and no matter how constructively it is utilized and manipulated, it is fundamental to success that each subject receive a measure of individual treatment. Upon this individual psychotherapy hinges the best utilization of any stable environment which can only be a valuable adjunct.

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EXHAUSTION SYNDROME IN EXCITED PSYCHOTIC PATIENTS[1]

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Psychotic patients who maintain a progressive motor and mental excitement are in danger of developing an exhaustion syndrome which may terminate in sudden death, unless this syndrome is recognized early and adequate treatment instituted immediately. This paper will attempt to emphasize the seriousness of this syndrome; to note the existing etiological theories, known physiological and clinical data; and to outline the treatment which has, in this author's hands, appeared to relieve this reaction.

The exhaustion syndrome may be said to consist of:

1. Sustained motor and mental excitement with continual activity for a period usually from two days to two weeks.
2. Rapid thready pulse.
3. Rapid loss in body weight.
4. Profuse clammy perspiration.
5. Fall in blood pressure and pulse pressure.
6. Hyperpyrexia—this is usually from 100° F. (R) to 104° F. (R) if death does not occur; prior to death the temperature may rise to 110° F. (R) or higher.

Many of these patients are young, had led previously useful lives, and had developed psychoses very shortly prior to the excitement period. Many of these psychoses have been, and will be, of short enough duration to expect a return to adjusted social life, provided the patients do not die from the excitement exhaustion. The majority of the recorded reaction types were the manic phase of manic-depressive psychosis and the catatonic type of schizophrenia. Both of these mental reactions have a relatively short course, with comparatively rapid onset and decrudescence; their prognosis is the best of most of the non-organic psychoses.

Description of a Typical Case

A young individual, in the 2d or 3d decade of life, becomes restless and excited. This psychomotor activity increases and is accompanied by euphoric hilarity or fearful anxiety in response to extrospective or introspective pressure of ideas. Work and duties are neglected. Sleep becomes difficult and often impossible. Impulsive or responsive aggressiveness increases. The individual breaks equipment or furniture or assaults his neighbors, apparently without reason. He is admitted to the hospital. The excitement and restlessness continue day and night, with only momentary respite. Excitement increases until it becomes a continual maniacal furor, in which the individual will tear off his clothes, tear the clothes to strips, take the bed apart, rip the mattress to pieces, bang and pound almost rhythmically on the walls and windows, dash wildly from the room, assault anyone in reach and run aimlessly, and without apparent objective, from one end of the room to the other. The pulse becomes rapid even in the periods of momentary rest. Weight loss becomes apparent. Perspiration is profuse and continual. The blood pressure falls, and the pulse becomes thready. Fever is then noted. Early in the furor it ranges around 100° F. (R). When confined to a room, the patient will thrash against the wall or butt his head against it. If placed in restraint, either in a continuous tepid tub or in bed, (in pack or sheet) the patient will strain ceaselessly against the restraint in an attempt to tear out and maintain his externally objectiveless activity. Fever increases, the pulse becomes more thready and rapid, blood pressure falls further, perspiration drips continually, the tongue becomes dry and furred, the skin becomes flushed and feels hot to the touch. After varying periods of excitement of from hours to days, the temperature may rise to 105° F. (R), or 107° F. (R), or even 110° F. (R). The skin may become pale or cyanotic and suddenly all activity ceases, respiration and cardiac activity stop, and the patient is dead. This end may come so suddenly that the attending psychiatrist is left with a chagrined surprise, as if to say to himself, "What happened? Why did this patient die?" "No apparent physical disease

[1] From the neuropsychiatric section of the Regional Hospital, Fort Benning, Georgia.

was present!" "What could I have done to help him?"

In a review of literature on this subject in 1937 this author collected 364 cases, and added 12 of his own, making a total of 376 cases of exhaustion death.[7]

In 1937, Scheid[6] reported 22 cases of deaths in acute catatonics.

In January 1944 the writer[8] reported 4 additional cases of acute excitement exhaustion, of which 2 died (1 catatonic and 1 manic) and 2 recovered from the exhaustion reaction (both catatonics).

In May 1944, Billig and Freeman[9] reported 3 cases of fatal catatonia.

TABLE 1

REACTION TYPES IN EXHAUSTION PSYCHOTIC DEATHS

Reporter	Date	Manic-depressive	Schizophrenic catatonia	Untabulated, or mixture of diagnoses
Scheidegger(1)	1928	...	43	...
Bamford and Bean(2)	1932	...	3	...
Derby(3)	1933	148	..	...
Stefan(4)	1934	...	..	148
Davidson(5)	1934	...	..	22
Scheid(6)	1937	...	22	...
Shulack(7)	1938	9	2	1
Shulack(8)	1944	1	1	...
Billig and Freeman(9)	1944	...	3	...
Total deaths	403	158	74	171

Therefore, up to May 1944, 403 cases of acute exhaustion death have been reported in the literature. The division into basic mental reaction types is shown in Table 1.

The only consistent post mortem findings have been general visceral and encephalic vascular congestion, with the usual petechiae and occasional small hemorrhages which accompany marked vascular congestion. Occasionally there has been a finding of cloudy swelling of cortical and subcortical neurones, but this has not been a consistent finding of all investigators. Clinically, the consistent findings in these patients have been a period of antemortem excitement, derangement of the thermal control mechanism, antemortem rapid pulse and low blood pressure with termination by sudden complete inhibition of the cardiac cycle.

Of all the explanations for these clinical changes and post mortem findings, the most likely appears to be a mechanico-functional one. This consists of the presence of constitutionally inferior cardio-vascular and autonomic systems, which, in the presence of prolonged exhaustion, are overloaded beyond their viable capacity by the accumulation of toxemic substances during the exhaustive period, with the correlated suppressive activity by the autonomic systems in these constitutionally endowed individuals. The resultant interaction of reflexes of emotional tension and exhaustion (catabolic toxemia), produces cardio-vascular collapse soon. Although there appears to be no essential disagreement in the generally accepted dynamics of such exhaustion deaths, it is pertinent to mention some of the factors which seem to play important roles in the different individual patients.

1. *Vagal Hypertonia:*

Laurence(10) (with the consultive aid of Brown-Sequard), and Stefan[4] suggest death in these cases is due to contributory factors from exhaustion and emotional reflex sensitivity, and the direct factor of over-irritation of the vagus nerve, or center, causing cessation of the heart beat. This is indirectly supported by the opinion of Weiss and Baker (11) to the effect that in some instances sudden death may be due to a constitutionally hyperactive carotid-sinus reflex which reacts on relatively slight stimulation to cause lethal syncope. Vagal hypertonia may be sufficient in properly constituted individuals to cause fatal syncope, but in such cases it should be expected after a single intense stimulus. Death would occur immediately if this were the only factor, rather than after hours to days of continual excite-

ment stimuli, as occurs following the exhaustion syndrome. Other factors would seem to be present, although vagal hypertonia probably plays an important part.

2. Psychic and Emotional Tension:

Robertson(12), Gregg(13), Moritz(14), and Weiss(15), lay stress on the inhibitory effect of emotional and psychogenic tone upon the cardiac cycle through the medium of inhibitions of the medullary and basal ganglia and brain stem centers, or the vagal reflex. That emotional surges do influence the physiology of various organs is indicated by the autonomic reflex of blushing (vasodilation) caused by the emotion of embarrassment; the emotions of fright or rage will institute an autonomic reflex causing blanching (vasoconstrictions), perspiration (sudorific gland stimulation) and increased adrenalin secretion into the blood with temporary hyperglycemia (stimulation of adrenal gland). The physiological effects of emotional tension in these exhausting patients cannot be ascribed to a purely sympathetic or parasympathic effect alone. The diverse clinical findings of sweating (sympathetic), vasodilation (parasympathetic), tachycardia (sympathetic) fall in blood pressure (parasympathetic), indicate a mixed autonomic response, since signs of reactivity of both systems are present.

The products of autonomic stimulation also exert secondary effects themselves. For instance, sympathin E (excitatory), produced at sympathetic nerve endings, will cause arteriolar constriction; acetylcholine, liberated from parasympathetic postganglionic nerve endings, will cause arteriolar dilation.[16] Hence, although emotional tension does reflect itself in altered organ physiology, it alone is not sufficient to cause death unless it acts on properly prepared and predisposed individuals.

3. Toxemia:

Toxemia is here construed to indicate a condition produced by a substance deleterious to the good health of the tissues. Muscular exercise produces lactic acid which ordinarily is catabolized to carbon dioxide and water, and anabolized (in the presence of oxygen) to glycogen. Carbon dioxide and lactic acid locally cause dilation of small vessels in muscles. A continual excess of muscular activity in these patients would, therefore, produce an excess of lactic acid and carbon dioxide, producing a prolonged peripheral vessel dilation. Histamine, also produced by muscular activity and destruction, causes increased capillary permeability, with transudation of blood plasma into the tissues. (In cases 6 and 7 in this report a slight reduction of serum protein was noted.) Davidson (4) suggests a capillary toxicosis by substances liberated in the body similar to the "H" substance of Lewis (substance similar to histamine in action, liberated by injured cells of epidermis, which either acts directly on arterioles to dilate them, or induces an axon reflex dilating the surrounding vessels, or acts in both ways.) Such a substance, if present in excess, would maintain the peripheral vessels in continual dilation and cause a fall in blood pressure, and reduce the effective circulating volume, and might be considered a toxemic substance in these patients.

The excess presence of lactic acid, histamine, and "H" substance of Lewis appear to be important in the maintenance of small blood vessel dilation and circulating peripheral blood stasis in these patients. It is conceivable that such continual peripheral stasis in the presence of a poorly constituted cardio-vascular tree would soon consume the cardiac reserve and hasten death.

4. Sodium Loss:

The profuse perspiration causes the loss of sodium in the form of sodium chloride. The sodium chloride in the blood is maintained by transfer from the tissue sodium. This produces a greater tissue potassium balance (as compared to sodium). The action of histamine and its allied substance (acetylcholine) is enhanced in the presence of a higher potassium ratio. This further maintains the peripheral vasodilation instituted by the histamine or acetylcholine. If maintained, the effectiveness of the circulating volume is reduced, causing the secondary "exhaustion shock."

5. Disturbance of Acid-base Balance:

Shift of the acid-base balance to the acid side, as indicated by a lowered alkalis re-

serve (decreased carbon-dioxide combining power), causes a reflex vasoconstrictor response by direct action on the medullary vasomotor center. Although the prolonged muscular hyperactivity would be expected to produce a plethora of carbon dioxide and lactic acid, and use up the existing supply of oxygen in its metabolism, this is not substantiated in the blood by the consistent normal alkali reserve determinations found in the venous blood of these patients. Cyanosis is not usually present until very close to death. The initial vasoconstrictor effects of acidosis are not seen here, although the sub-clinical acidosis produced by muscular metabolites may eventually deter the normal activity of the cardiac muscle directly, if prolonged, and act directly on small blood vessels to cause local vasodilation.

6. *Sudden Atony of the Circulatory System:*

Constitutionally, certain individuals may be endowed with small hearts, and narrow, thin-walled blood vessels. Lewis(17) autopsied schizophrenics and showed that they had small, narrow, thin-walled carotid arteries and cerebral vessels, and usually small narrow vascular trees. Pende(18) describes the asthenic individual with a delicate vascular tree. Psychiatrists are well aware of the asthenic constitutions of many schizophrenics with their thin stature and decrease of parenchyma in their organs, with attendant lower blood pressures and tendency to vagal tonia. The excess load of work on such a constitutionally endowed vascular tree would be expected to produce failure of the vascular system mechanically because of its native lack of reserve. The exhausting patient is extremely active and places an excessive load upon the vascular tree for a prolonged period. When the limits of its resources are exhausted, complete cessation of vascular muscular activity may occur. However, this etiological explanation is insufficient to explain the deaths in cyclothymic personalities, who generally do not have the asthenic constitution.

In 1944, the writer became interested in an attempt to prevent these deaths. In that year 4 additional cases were reported(8). Two of these exhausting, hyperactive psychotics, to whose array of therapy were added sodium (in the form of sodium chloride) and adrenal cortical hormone, were followed by slow and steady improvement. Since then the writer has attempted to recognize these cases early so that prompt administration of adequate therapy might possibly save others. It is recognized that if these cases are permitted to progress too far, when the temperature has begun to rise too high, and when the accumulated products of exhaustion have begun to act upon the constitutionally inefficient neurovascular systems, then no treatment appears to be able to stop the apparently inevitable trend toward early death. If these cases are recognized early and given a full array of treatment immediately, there is a probability that many of them might not progress to that stage of hyperpyrexic collapse that precedes death. Early recognition of this syndrome is the important thing, and it is necessary for the psychiatrist to be constantly alert to the dangers attendant on all continually excited psychotics.

From April 1943 to June 1944, 7 additional cases of exhaustion syndrome were successfully treated by this writer. These patients were all males (military personnel) whose period of excitement was not permitted to run beyond 9 days without adequate treatment (Table 2). Three patients experienced 2 days of excitement; 2 had 7 days excitement. One case was excited for 8 days, and one for 9 days before the first initial rise in temperature above 99° (R). This first rise in temperature was considered the initial sign of an exhaustion syndrome; when it occurred the patient was considered seriously ill and treatment of the exhaustion syndrome was immediately instituted.

The youngest patient was 19 years of age and the oldest 37 years of age. Four were white and 3 colored. Two patients presented manic-depressive reactions, and 5 dementia praecox reactions, of which 4 were of the catatonic type.

The period of military service prior to the onset of their hyperkinetic responses was usually short. Five of the patients had less than 4 months' service. Of these, one was in service one week, another two weeks, two one month.

A rectal temperature of over 102° F. was considered critical. All of these patients, except one, had fevers above 102° F. Three developed fevers above 104° F., but not be-

TABLE 2

OUTLINE OF CASES

Case No. and initials	Pre-fever duration of excitement	Age, sex, color	Mental reaction type	Military service (fraction of years)	Temperature range with duration and pulse rate range	Duration of hyperpyrexic excitement *Before* and *After* starting regime	Complications and coincidental disease
1. C. W. V.	7 days	19 Male Colored	Maniac-depressive maniac	1/52	99.8–101–104.2– 20 days 110–120	8 days 12 days	1. Gonnorrhea, acute 2. Systemic syphilis
2. P. K.	2 days	20 Male White	Catatonic type of schizophrenia	4/12	101–102.4– 41 days 94–118	3 days 38 days	None
3. A. W. T.	7 days	27 Male White	Hebephrenic type of schizophrenia	1/12	100–101.4– 21 days 100–120	6 days 15 days	None
4. E. W. S.	2 days	36 Male Colored	Catatonic type of schizophrenia	1/12	100–102.6– 8 days 110–135	3 days 5 days	Hypostatic pn(?) (1 day)
5. A. G. B.	8 days	28 Male White	Catatonic type of schizophrenia	3–4/12	99–100–104– 6 days 80–90	3 days 3 days	Post-hemorrhoidectomy
6. H. T.	9 days	36 Male Colored	Maniac-depressive Agitated depression	2/52	102–104.8– 14 days 100–110	2 days 12 days	None
7. A. D.	2 days	37 Male White	Catatonic type of schizophrenia	2–5/12	102–103.2– 14 days 80–110	4 days 10 days	None

yond 105° F. It had been noted that temperatures ranging above 105° F. usually ended fatally.

In the majority of instances, adequate treatment was necessary for one to two weeks. The longest period of treatment, resulting in recovery from exhaustion, was 41 days, and the shortest period of successful treatment was 6 days. Subsidence of the hyperpyrexia was found to be the best index of improvement from exhaustion. The patient, therefore, was not considered to have recovered from the exhaustion syndrome until his temperature had become normal again and had been maintained at normal for 3 days. During the time that the temperature returned to normal the marked hyperkinetic excitement, sweating and dehydration were also concommitently improved. Occasionally restless excitement and sweating stopped several days before return of temperature to normal.

Blood chemistries were secured on all 7 of these patients. The findings on the second and third patients were lost but the author recalls that they were within normal range.

It is noted (Table 3) that there was very little change in the constituents of the venous blood of these patients at the height of their fever. In one patient there was a rise in the NPN and urea N, but not a coincident rise in the creatinin. The blood chlorides were consistently at high normal. At first this was considered surprising because of the great amount of sodium chloride loss in the profuse perspiration. However, during such states there is a shift from the tissue sodium chloride to the blood sodium chloride so that, although there is a loss of sodium chloride, it is felt mostly in the tissues rather than in the circulating blood. Under such circumstances of sodium shift from the tissues to the circulating blood, conceivably there may be a change in the sodium potassium ratio in the tissues, tending toward a higher potassium ratio. This is the rationale for the increased sodium intake.

The carbon dioxide combining power of their venous blood was found in the lower brackets of normal, between 52 vols.% and 66 vols.%.

In the 2 cases (6 and 7) tested, the serum albumin was reduced and the serum globulin was high normal in one and increased in

TABLE 3

AVAILABLE LABORATORY DATA ON NEWLY REPORTED CASES

Case No. and initials	Blood serology	Spinal fluid Wassermann	Blood chemistry at height of fever								
			Urea N. (10–15)†‡	NPN (20–35)†‡	Creatinin (0.9–2.0)†‡	Sugar (80–120)†‡	Chlorides (450–520)†‡	CO_2 (Vol. % (53–72)†	Albumin 4–6†‡	Globulin 1.5–2.5†‡	Hematocrit 47% (males)† 42% (females)†
1. C. W. V.	Positive	Negative	15	30	...	95.2	478	...	...	...	....
2. P. K.*	.....	.....	...	...	...	...	...	...	...	...	....
3. A. W. T.*	.....	.....	...	...	...	...	...	...	...	...	....
4. E. W. S.	Negative	Negative	26.2	54	1.3	95	495	53	...	...	....
5. A. G. B.	Negative	.....	...	24	1.5	95	510	66	...	...	....
6. H. T.	Negative	.....	...	33	1.5	...	462	62.5	2.8	2.6	40%
7. A. D.	Negative	.....	...	23	1.3	117	528	56	3.3	3.0	42%

* Laboratory reports were within normal limits. They could not be recorded because they were mislaid.
† Normal blood constituants according to U. S. Army Medical Department.
‡ Figures are in mgms per 100 cc blood.

the other. The resultant albumin-globulin ratio shifted toward the globulin side. The total serum protein was slightly reduced.

The blood viscosity as determined by the hematocrit in patients 6 and 7 (40% and 42% respectively) was low according to the accepted normal hematocrit reading of 47% in males.

An interesting correlation was the decrease in body weight several days prior to the onset of hyperpyrexia. The body weight continued to decrease with an initial sharp fall at about the time the highest temperature was reached. Then the body weight increased more slowly as the hyperpyrexia decreased.

Protocols

Case 1.—A 19-year-old colored male admitted in an extremely hyperactive, noisy and uncooperative state. On admission his temperature was 97.4° F. and pulse 88 per minute. On the 6th day his temperature rose to 99° F. (R) and his pulse to 104 per minute. Treatment was instituted at once:

Sedation—sodium amytal, grains 7½ intravenously, twice daily; 6 grains orally when required.
Nourishment—tube feedings twice daily.
Fluids—consisting of intravenous infusion of 1000 cc normal saline, or 5% glucose in saline twice daily.
General nursing—frequent change of dry clothing and sponging.
Adrenal cortex extract—1 cc eschatin three times daily, subcutaneously.
Salt—sodium chloride 10 grams daily, at first 5 grams in each tube feeding, and later as 5 gram tablets orally, in addition to the saline given intravenously.

On the 7th day of treatment hyperkinesis was sufficiently reduced for the patient to begin voluntary oral feedings. On the 15th day his temperature rose to 104° F. and his pulse to 120. The temperature decreased the next day and fluctuated between 99° F. and 102° F. until the 22nd day when it was maintained at normal for 2 days.

On the 23d day there was a general improvement of his mental reaction. He became less euphoric and much less hyperactive. He stopped his whistling and dancing and became quiet and tractable. The diagnosis was psychosis, manic-depressive, manic type, with recovery from psychotic exhaustion.

Case 2.—A 20-year-old white male admitted after 2 days of marked hyperactivity. He was a ward problem from the very beginning. He displayed constant perseveration of motion and speech until they became ceaseless echolalia and echopraxia. He expressed both visual and auditory hallucinations. He was unable to eat because of his continual internal push of ideas. He was slovenly in dress, expectorated on himself, and punched the walls. He required both sedation and sheet restraint. Continuous tubs had little effect. Sodium amytal, grains 7½ intravenously twice daily reduced his activity somewhat. On the 2d day his temperature rose to 102° F. (R) and his pulse to 114 per minute. From the beginning he received tube feedings, fluids intravenously, and eschatin, 2 cc t.i.d., subcutaneously, as well as 10 grams of salt daily. His temperature began to fall below 102° F. (R) on the 9th day of treatment, at which time doses of eschatin were reduced to 1 cc t.i.d. By the 38th day the temperature had fallen to 99° F. and remained consistently at that level. His pulse was between 80 and 90. He was able to eat spontaneously. Eschatin was stopped at this time and the patient was able to mingle with other patients on the ward without any sedation or restraint. By the 38th day he was considered to have recovered from his psychotic exhaustion due to catatonic schizophrenia.

Case 3.—A 27-year-old white male, transferred to the neuropsychiatric section after 7 days of hyperactivity while on a medical ward. He had become restless and anxious and exhibited compulsive behavior, constantly washing his hands and hair. He shaved three to five times daily, and rinsed his mouth constantly. At the time of transfer he began to exhibit, in addition, a loud throat-clearing noise similar to an irritating cough. He impulsively ran short distances about the ward, and became very filthy in habits. He stated then that his stomach was disintegrating and that there was poison on his hands. All these delusions produced hyperactive behavior, with total disregard of food. On the 8th day he was extremely hyperactive, his temperature rose to 101° F. (R) and he was immediately started on intravenous saline and glucose and tube feedings. As in the foregoing cases, he received sedation, nourishment, fluids, sodium chloride and eschatin. By the 10th day of treatment the temperature had been reduced to 99.2° F. and restlessness had subsided. He was diagnosed dementia præcox, hebephrenic type, with recovery from psychotic exhaustion.

Case 4.—A 36-year-old colored man admitted to the hospital completely mute and hyperactive. He was uncooperative, filthy in habits, retained his urine and stool. He postured, displayed echopraxia and cerea flexibilitas. By the 7th day he began to exhaust himself. His temperature rose to 102.4° F. (R). He received daily 2000 cc 5% glucose, and 1000 cc M/6 sodium lactate intravenously; and by tube feeding, 500 cc of egg nog, 500 cc of fresh fruit juices or soup, 4 oz. beef extract, 30 mgs. thiamin chloride, 100 mgs. nicotinic acid, 150 mgs. ascorbic acid, also salt, sugar and sodium bicarbonate. In addition, he received injections of Upjohn adrenal cortex extract 1 cc twice daily. By the 3d day of treatment his exhaustion state had improved. The temperature had dropped to 99° F. (R). The pulse had dropped from 136 to remain leveled at about 90 per minute, and the patient was considered recovered from exhaustion. The diagnosis was catatonic schizophrenia.

CASE 5.—A 28-year-old white male transferred to the neuropsychiatric section 6 days following a hemorrhoidectomy in the surgical section of the hospital, because of marked hyperactivity.

By the 10th day of excitement he had lost weight, had a rapid thready pulse and had a temperature rise to 101° F. (R). At that time he was considered seriously ill from exhaustion while in a state of acute mania. He received massive doses of vitamins, 4000 cc of liquids intravenously, and two tube feedings daily, as well as 1 cc of adrenal cortex extract t.i.d. Three days later he had improved considerably from his exhaustion state. The diagnosis was catatonic schizophrenia.

CASE 6.—A 36-year-old colored male who was so excitable and distractable that no connected information could be secured from him. He was obviously euphoric, and engaging in a flight of ideas. He continued hyperactive, noisy, disturbed, singing constantly, and punching at the walls. Large doses of sedation, plus continuous tepid tubs failed to allay his marked motor excitement. On the 11th day his temperature rose to 102° F. (R). He was considered as exhausting himself. Accordingly he received 1 cc adrenal cortex extract t.i.d., 3000 cc fluids intravenously daily, including sodium lactate, and tube feedings. Perspiration became so profuse that 4000 cc intravenous fluid were then necessary along with tube feedings of protein food and vitamins and injections of adrenal cortex extract, 2 cc t.i.d. The prognosis for life appeared very grave. His motor unrest was ceaseless. It was only partially allayed by amytal instillations. By the 7th day of treatment his temperature rose to 104.8° F. (R), and this was considered the most critical period. Treatment was vigorously maintained. On the 12th day of treatment the temperature fell to 99° F., and remained at that level. His hyperactivity decreased and he was considered recovered from the exhaustion state. The diagnosis was manic-depressive reaction, mixed type (agitated depression).

CASE 7.—A 37-year-old white male admitted to the hospital after two days of restless, agitated and impulsive behaviour. He expressed paranoid delusions, became exceedingly impulsive and hyperactive, and then admitted auditory and visual hallucinations. He stated he felt a snake in his head, and made reference to everyone around harming him. All this time he was restless and continually talkative in an irrelevant manner. At times he would not respond to external stimuli. He required 1 gram of sodium amytal, intravenously, in divided doses, in order to give him rest. He received 2000 cc of fluids intravenously, in conjunction with the food which he sporadically ate, and tube feedings. On the 4th day he became somewhat pale. His pulse became poor in quality. His blood pressure was 115/85. Perspiration was profuse. On the 5th day his temperature rose to 101° F. (R); his pulse became thready. His tongue was red and dry. The temperature rose to 103.2° F. on the 6th day and remained so for 3 more days. Treatment was maintained. By the end of 10 days his temperature returned to 99° F. (R), his excitement subsided, and he was considered recovered from his exhaustion state. The diagnosis was catatonic schizophrenia.

COMMENT

Exhaustion may occur as a result of many conditions. When associated with acutely excited psychotic conditions, deaths have frequently ensued. The causes of death have been the subject of considerable investigation and speculation. It is felt that a single cause cannot explain the varied conditions under which such deaths have occurred, although certain features appear to be generally consistent.

The mental reaction types have been divided amongst the manic-depressives, with their cyclothymic constitutions and allegedly greater preponderance of parenchyma; and the catatonic schizophrenias with their asthenic constitutions and allegedly greater preponderance of stroma. Exhaustion deaths have occurred in patients excited from climacteric psychoses, and occasionally from psychoses with other endocrine disorders (4). It does not appear appropriate to postulate as a predisposition, the presence of any definite type of body constitution.

In the light of clinical and therapeutic observations, the most important predisposing factor appears to be a neural and vascular interrelation in which the parasympathetic nervous system (including vagal) is overreactive. Direct factors in these sudden deaths appear to be mechanico-functional ones already described (vide supra). The necessity for early and adequate treatment is clear and the suppositions forming the basis of therapy have been propounded.

The constant muscular activity produces an accumulation of catabolites in the peripheral tissues, with resulting peripheral vasodilation. Since the accumulations of these products is maintained by the continual psychomotor activity, a prime aim of therapy must first be to reduce the psychomotor activity. For this purpose barbiturates, in sufficiently large doses (1 gram daily) have been found most useful. In some instances, as much as 2 grams of amytal intravenously in a 24 hour period, have been required to reduce the psychomotor activity. At times, when sedation had to be prolonged, it was

found beneficial to temporarily substitute for the barbiturate sedation (for one or two days), 30 or 45 grains of chloral hydrate, or, for an occasional dose, paraldehyde, 2 to 6 drams.

In addition to chemical sedation, the occasional use of cold wet sheet pack was of value. This must not be utilized when the patient is profoundly sedated because of the danger of complete collapse. The cold pack may be used prior to chemical sedation, and thus lessen the amount of chemical sedation required.

Another useful form of sedation is the continuous tepid tub for moderately disturbed exhaustion cases. Very severely disturbed patients do not seem to be affected by this and often tear out of the tub. A judicious combination of chemical sedation, cold sheet pack, and continuous tepid tub has reduced the activity in these patients.

Being unable to take nourishment and liquids orally, these patients quickly reduce the proteins, carbohydrates, fats, water, minerals and vitamins necessary for normal physiological activities. These food substances will then be commandeered from the basic body tissues, which will be depleted of their reserves and the body will lose weight. This occurs usually several days prior to the hyperpyrexia. The second important therapeutic measure, is therefore the maintenance of food intake. It has been found most efficacious to administer food by tube feedings containing no more than one pint at one time, from two to three times in each 24 hour period. If more food is intubated, all that has already been given will be regurgitated or vomited by the excited patient. Each pint of feeding should contain 2 eggs, 8 ounces of milk, 5 grams of salt, 1 ounce of sucrose, 2 ounces of citrus fruit, 2 ounces of beef extract, and powdered vitamins (thiacin 10 mg; nicotinic acid, 50 mg; and ascorbic acid, 50 mg:) Occasionally medicinals, such as sedatives, or cathartics may be placed in the tube feeding as required.

Early in the exhaustion cycle, the patient perspires profusely. Marked amounts of fluids are lost in this manner and must be replaced. The most efficacious method has been intravenous infusion after the patient has been sedated. From 2000 to 4000 cc of fluid in each 24 hour period has been required. Physiological saline is first infused. The next 1000 cc contains 5% glucose in saline. If a third 1000 cc of fluid is required, it may be saline, or glucose in saline. A fourth 1000 cc may be either 6/M lactate solution as a buffer, or physiological saline. The therapist must be guided by the amount of perspiration, activity, impending dehydration and hyperpyrexia to determine the amount of fluids to be instilled.

Due to the pyramiding of several factors, (the parasympathetic activity with accumulation of acetylcholine; the excess production of lactic acid; the relative shift of sodium-potassium ratio towards the potassium side; the long maintained muscular activity with resultant reductions of the vasoconstrictor response; the possible presence of "H" substances of Lewis) the peripheral dilatation of the small blood vessels seems to be uncontrolled by the usual neurovascular reflex. Low grade "shock" results. Following the findings of W. W. Swingle et al(19, 20) that a slow and steady improvement in shock symptoms within 36 to 48 hours followed the instillation of adrenal cortical extract, in experimental dogs, and that a similar beneficial effect did not follow the use of adrenalin, this writer has injected from 1 to 3 cc eschatin (supra-renal cortex extract, 50 dog units per cc) t.i.d., with apparent improvement in the patient's exhausted state. This has since been a regular addition to our treatment régime.

The loss of sodium as salt in the perspiration and urine is adequately replaced in the tube feedings and the saline infusions.

The hyperpyrexia, starting usually several days after the beginning loss in body weight, is as yet inadequately explained. Whether it is due to dehydration, early "shock," increased psychomotor activity, or central neural damage of the thermal control center (supposedly in the pre-tectal and diencephalon regions), or a combination of any or all of these, is not yet clear. At any rate, it is an indication of the onset of the exhaustion syndrome, and is the first indication for starting the above therapy immediately. Hyperpyrexia that is unchecked, and rises above 105° F. (R) indicates an extremely grave condition, usually resulting in death. Hyperpyrexia, therefore, acts as a guide for start-

ing, for intensifying, and for relaxing therapy, as well as a prognostic guide.

Summary

1. The need for recognizing an exhaustion syndrome in acutely excited psychotic patients, in order to be on guard for, and to prevent, sudden death from this complication, is stressed.

2. The exhaustion syndrome in acutely excited psychotic patients consists of: a. sustained motor and mental excitement; b. rapid thready pulse; c. rapid loss in body weight; d. profuse clammy perspiration; e. fall in blood and pulse pressure; f. hyperpyrexia.

3. The causes of this syndrome appear to include a predisposing parasympathetic nervous system ascendancy in the neural and vascular interrelations (modified by emotional autonomic reflexes) and direct mechanico-functional factors of accumulation of toxemic catabolites, malnourishment, dehydration, sodium loss, and lowered secretion of adrenal cortical hormones, with sustained small blood vessel dilatation and blood stasis.

4. Reports of this condition up to 1944 have revealed 403 deaths, but no recoveries.

5. In 1944, this writer reported 2 cases of recovery and in this paper adds 7 cases of recovery from the exhaustion syndrome in acutely excited psychotic patients following the early institution of a full array of therapy.

6. Therapy successfully relieving acutely excited psychotic patients from the exhaustion syndrome consists of (besides general nursing care): a. institution of therapy before hyperpyrexia reaches 105° F. (R); b. adequate sedation by chemical and physical means; c. adequate nourishment by tube feeding and intravenous infusions; d. sodium replacement; e. regular instillations of adrenal cortical extract.

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DESENSITIZATION OF COMBAT FATIGUE PATIENTS[1]

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Various methods of densensitization and deconditioning have long been used in psychiatry and also by the military. Recently, even before the entry of this country into the war, the British Army made part of their training the exposure of the men to the noises of battle, with the aim of making the men accustomed to these terrifying sounds(1). Our own services have utilized similar methods. Attempts have also been made to decrease the startle reaction and the anxiety in men who have been incapacitated by combat fatigue, by exposing them to the mock battles used for training, and by showing them moving pictures(2, 3); but reports of systematic therapeutic studies have not come to our attention.

Police horses in our metropolitan cities have long been desensitized by repeated exposure to startling sounds until they can accept the din and turmoil of traffic, as well as unexpected backfires, with equanimity and unconcern. It was rational to expect that similar procedures should decrease the startle reaction which is so constant, central and distressing a symptom of combat fatigue.

It was with great interest, therefore, that we received films selected by Comdr. Howard Rome, (MC) USNR, for the purpose of desensitization. These films are actual battle scenes: the first, of General Quarters; the second, of surface and aerial bombardment; the third, scenes entirely below deck with a description of the action by the chaplain coming over the loud speaker. These films show sights and sounds of battle, with planes shot down, but with no hits to surface ships and no injury or death.

Although our series thus far consists of only 14 men, our results, from using the films in a particular fashion, have so exceeded our expectations that it is not premature to report this method, which seems to deserve a more extensive trial.

The results in this series have not been due to the desensitization alone, but depend fundamentally upon the psychotherapeutic methods and régime at this convalescent hospital. However, certain effects in each case have been specifically achieved by this accessory technique. The method is as follows:

The patients selected are those with severe startle reactions and hypersensitivity to sound and noises. Some could not even stand music. The treatment is not begun until the patient has been in the hospital for at least a few days and has developed rapport with the members of the staff and confidence in them.

The man first thoroughly understands the purpose and method—in a word, that he is to see these terrifying and startling scenes with all the sounds, but beginning with doses that he can tolerate, until, like the police horses, he is not only no longer startled by them, but even becomes bored. Also, he is made acquainted with men who have been helped by these films and also with those who even enjoy seeing them, because now they can do so in perfect safety. This helps provide a therapeutic goal for the patient.

Three points are held to in the procedure. In the first place, the man's confidence and security are maintained by having a staff member present, usually the corpsman who operates the projector. This is a man whom the patient knows and who he knows is interested in him. If a patient becomes very upset, he is given special attention. We have shown the film in a moderate sized room to only small groups of about 6 patients, thus keeping the atmosphere personal; but it is likely that the method would be effective with large groups. Moreover, once the men become fairly well desensitized they probably could continue the process with a cabinet

[1] The opinions and views set forth herein are those of the writers and are not to be construed as reflecting the policies of the Navy Department.

[2] With the assistance of: K. C. Werner, CPhM., J. D. McLean, Sp(A)2/c and E/H. Beerbaum, PhM3/c.

projector trainer, if one were available. (This apparatus, issued by the Naval Aviation Training Division of the Bureau of Aeronautics, is a "juke box" for sound motion pictures.) Ours has not been in use long enough for an adequate trial.

The second and most fundamental point is *gradualness*. The showings are given every morning. At first the shades are up, the door is open. The man may even stand in the doorway and merely peek at the screen. He is free to look away or walk out at any time. At first the scenes are shown silently. Only gradually is the sound introduced. Day by day the sound is increased until full volume is reached.

The third point, and one of importance in some cases, is that the man himself is given control of the volume when this is indicated. The sense of mastery, which comes with this, often speeds up the desensitization, To further facilitate mastery the man is encouraged to talk and comment on the scenes and to show his knowledge and superiority by criticizing what is going on.

It was readily observed that the men are hypersensitive to very specific sights and sounds. For example, Number 9 did not mind the plane crashes or the general quarters gong, but could not stand the flashes of the big guns. Number 14 did not mind the flash of the guns but was at first panic-stricken by the explosion of depth bombs and near misses in the water. This was because he had dropped many depth charges while on anti-submarine duty.

To our surprise, an average of 12 showings has proven sufficient to desensitize these men, including those with very severe startle and anxiety.

After the men become bored by these scenes, which at first so terrified them, their startle and anxiety are tested by showing them a film of the Marines invading Tarawa. In this, not only the sights and sounds, but also the fighting and casualties are shown. This short reel is more terrible than any we have seen, and far exceeds anything the men will encounter in newsreels. After this most men spontaneously test themselves by going to commercial moving pictures and newsreel theatres which most of them, because of their anxiety and startle, had hitherto been unable to attend. Thus their desensitization is not limited to these specific films, but extends to others. Moreover, there is some general decreases of startle reaction even to such sounds as unexpected backfires; but here the results are somewhat less marked. In addition, these men show some diminution of their general hypersensitivity and anxiety which seems to be a specific result of this procedure apart from any other treatment or from the regime at this hospital. All the men in this series, with a single exception, felt greatly benefited and heartily recommended continuing this method.

Three aspects can be discerned in the patient's improvement. The first is simple desensitization. As in the police horse, the startle is lessened by repetition. The process also seems to include in large part the "extinction" of a conditioned reflex(4). The terrifying sight and sound is repeated but nothing harmful happens. On the contrary, the setting remains pleasant. Gradually, the sounds become associated with the pleasant setting as a reality and dissociated from the dangers which are now only memories. Thus, besides the simple desensitization, there is a definite deconditioning toward these sights and scenes which they can now witness in comfort and safety.

A third aspect, and perhaps this again is but another way of describing what happens, is the psychological. The man has been overwhelmed by fear and suffering in reaction to the danger and distress which these scenes meant for him in reality. The danger and suffering were more than he has been able to digest and assimilate emotionally. Now he is presented with these scenes again. But now he is actually in safety; the experience is no longer real life but only scenes on a screen; and, even then, they are in very small doses which, moreover, he himself can control and grade. He can thus learn to master, bit by bit, that which once overwhelmed him.

Rational psychotherapy like any other form of medical treatment must be based upon a sound understanding of the patient, of his major emotions and motivations. Working this out, as can be done in most of these cases in one or two hours, is the indispensible causal step toward desensitization, for it goes to the source of the anxiety

and symptoms. But sound moving pictures can be utilized as an *accessory* to rational treatment in saving time and speeding desensitization. Moreover they are often useful as a test of the status of a man's anxieties; as such, they are an aid in connection with diagnosis, treatment and disposition. In some cases the pictures function like sodium pentothal in mobilizing anxiety in men who are unaware of it. In such cases, the general anxiety and the specific fears and traumatic experiences which are stirred up can then be dealt with in interviews.

Summary

A simple accessory method is described for the desensitization of startle reaction and, to some degree, of anxiety, in cases of combat fatigue, by the use of moving pictures of battle scenes.

Each showing takes only about 15 minutes and on the average 12 showings have produced marked improvement in all but one of 14 cases.

The simplicity of the method; its relative speed and the favorable results achieved without taxing the physician's time, indicate a more extensive trial of this supplementary procedure.

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THE STUDY AND TREATMENT OF ALCOHOLISM IN THE 5TH S. C. REHABILITATION CENTER

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In the United States, indulgence in alcohol has become more common, and in the past decade there has been a definite increase of alcoholic diagnoses in the annual reports of state hospitals, and a marked increase in the number of life insurance rejections because of alcoholic overindulgence. In making a survey of the first 100 cases admitted to this Rehabilitation Center in early 1943, it was noted that alcohol was mentioned in most of the histories. In the 700 cases following the preliminary group, a more diligent and searching effort was made to elicit accurate alcoholic histories. In general, our group at the Center is somewhat different from the average psychiatric hospital or clinic practice. Although they have been found guilty of offenses against military law, yet they approximate the general population more closely in their make-up, and because of their youth (average age 20 to 22 years) evasion of reality, and antisocial trends are not so firmly entrenched. Statistical studies of over 700 case histories indicate that 34% of our population falls into the category of stable personalities, (so called "normals"). The other predominating groups were neurotic personalties, schizoid personalities, and constitutional psychopathic inferiors. Schizophrenia and psychoneuroses, *per se,* were comparatively rare.

The investigation as to alcoholic tendencies indicated that the term 'social drinker' was inadequate in that it included all degrees of drinking from the teetotaler to the chronic alcholic. Partly out of curiosity and partly from the aroused interest, it was decided that an arbitrary classification of some sort was necessary. The first categories were vague and cumbersome when applied to clinical cases but as the histories accumulated, the wealth of material began to point the way toward improved 'boundaries.' It is my opinion that they are, as yet, coarse and unwieldy but in our hands they have proven fairly reliable. It is hoped that they will contribute to a better understanding of the term 'alcoholism,' but if they do nothing but stimulate interest (or even antagonism which should lead to critical thought and thereby contribute to the main subject) they were well worth the time and effort spent in developing them.

In seventy-seven or 11% of the cases, no history of alcoholic indulgence was elicited.

Two hundred seventeen or 31% were called 'social drinkers,' having imbibed small amounts (1-2 ounces) 1-2 times per week for at least 3-4 years; with no history of disorderly conduct or shameful behavior, and possibly 2-3 drunks per year.

Forty-nine or 7% were 'moderate drinkers,' indulging quite regularly in moderate amounts (4-6 ounces) of alcoholic beverages for 3-4 years, occasionally becoming drunk or 'tight,' ranging from 5-20 per year; and rarely getting into financial, marital or industrial difficulties, with possibly a few arrests for staggering or being drunk in public. (Usually given a fine.)

One hundred sixty-one or 23% were classified as 'alcoholism,' had indulged regularly in alcoholic beverages for 3-4 years, averaged 25-50 drunks per year; were inclined to jeopardize their marital, economic and industrial adjustments; had history of arrests for disorderly conduct and disturbing the peace and tended toward sexual immorality. Usually no history of delirium tremens.

One hundred sixty-eight or 24% were diagnosed as 'chronic alcoholism,' having indulged quite heavily and regularly in many types of alcoholic beverages for at least 5-6 years, using substitutes occasionally, were drunk 1-3 times per week—averaging 125 per year; invariably had been arrested for drunken misbehavior or pugnaciousness, and occasionally for serious criminal acts; minimized indulgence from 25 to 50%, were boastful, overbearing and sexually promiscuous. Usually showed coarse, ruddy complexion, mild to moderate tremors, and not

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inclined to be euphoric; history generally showed delirium tremens 1 or 2 times.

Twenty-eight or 4% were diagnosed 'chronic alcoholism with mental deterioration,' were heavy drinkers of all alcoholic beverages and numerous substitutes *i. e.*, strained canned heat, raisin jack, bay rum, hair tonics, extracts, etc.; were drunk 4-6 times per week, averaging at least 200 drunks per year, having indulged at least 8-10 years (many for 10-12 years); had frequent arrests for antisocial behavior, usually including felonies; were sexually promiscuous with desire for perversions, and history of associating with low class prostitutes and homosexuals without restraint. Seven or 25% of this group had become addicted to marihuana, barbitals or opium, and showed greater immorality; invariably presented coarse, ruddy complexion, bulbous nose, tremors of hands, poor coordination, and had the usual signs of mental deterioration (such as euphoria, overtalkativeness, fabrication, meaningless promises, poor judgment, etc.); history of D. Ts. were denied but exacting analysis showed repeated D. Ts.

The most noticeable feature of the interviews was that the more frequent the indulgence, the more the men were conscious of it, and the more they learned how to belittle or cover it up. In adding these figures together it is quite impressive that the great majority, 623 or 89%, had indulged in alcohol at some time or another. Those with histories of emotional immaturity or who had evaded reality for some time showed a fairly steady progression toward chronic alcoholism but for the most part they would have been classified a few years ago as 'alcoholism.' Although drinking had increased somewhat in the Army, yet this study could not substantiate the oft made remark: "He started drinking in the Army." True this was the reply to superficial questioning but prolonged interviews and periods of analysis always led to the finding that this was an erroneous or fabricated statement. There were definite findings that the soldiers had started drinking from 1 to 3 years before getting into the Army, and that the average starting age was between 15 and 16 years. Those classed as chronic alcoholics usually revealed a fairly steady history of drinking and maladjustment, for 5 to 15 years before entering the Army. Often correspondence or investigation would indicate that home adjustment had been interrupted or jobs terminated by alcoholic debauches or residuals, but the common responses would be: "I got along all right" or "I never had any trouble on the job." In order to overcome these inaccuracies, repeated lectures and case examples were presented to the psychiatric interviewers until they attained complete correlation of the correspondence, social histories, and rehabilitees' oral responses and left few loop holes which could be camouflaged with their deceptive and glib tongues.

Review of our cases revealed that some of the most common motivations for alcoholism were as follows:

1. Irritation from tedium of routine.

2. Inability to tolerate emotional tension —sometimes for shorter periods than 1 hour —anger, disgust, depression, confusion, and sorrow led to such discomforts that the soldier had to drown them.

3. Necessity of following the more exacting rules of the Army (in contrast to civilian life).

4. Exhibitionism—show-off inclinations are easier under alcohol—false front and courage.

5. Boredom—much of this resulted from a lack of education in various healthy outlets, earlier in life.

6. Frustration—failure to gain recognition or advancement (when my friends do).

7. Restriction and inhibition were minimized by moving to different places and being with different groups. They felt that now that "I am away from home, I can do anything without feeling that it is a blotch on my community reputation." Invariably they stated that they would inhibit themselves again, on returning to the home community.

Frequently, alcoholics offer emotional excuses for their failure to remain sober, explaining that their wives were pregnant or seriously ill, or they must have a furlough to visit a "dying" mother or relative, etc. Reconstructing the picture revealed that the pleasure principle and evasion of duties (reality) were the prime factors. Thus they went AWOL not to visit a dying or loved one, but while releasing themselves on a drunken

spree. Some days later they began to worry about their relatives, or more realistically, about an excuse, and then visited home for a day or two in order to substantiate their explanation upon returning to military control. The chronic alcoholic found through experience that although his "emotional" entreaties were eyed with suspicion and distrust by the officers and NCO's, yet they could not disprove them as easily as other alibis, nor brush them aside for fear that the story was true.

The diagnoses of chronic alcoholism, and chronic alcoholism with mental deterioration were most frequently found in the background of broken homes caused by: 1. Chronically ill parent or parents. 2. Alcoholism. 3. Nervous disorders. 4. Crime. 5. Separation or divorce. 6. Death.

The findings of definite alcoholism in the family background often left a permanent mark upon that individual, and in general is in agreement with Strecker's conclusions that "Children who live in an alcoholic environment are frequently so crippled in the development of their personalities that they can never be made psychologically strong again." Often these diagnoses were concomitant with an early or childhood history of: 1. Schizoid or introverted personality. 2. Neurotic personality or neurosis. 3. Mental deficiency. 4. Psychopathic inclinations.

Thus it is seen that most cases of prolonged alcoholic overindulgence are poorly equipped to protect themselves against this drug. Those having shown an inclination from childhood to evade reality and responsibility, cannot be expected to overcome their problems through repression and abstinence. They are in need of a more thorough education in how life's problems must be met, and it has been the psychiatrists' goal to gradually and cautiously expose their methods of self-deception to their own critical view. In actual practice this leads to greater honesty in discussing the history and therapeutically expedites the development of deeper insight.

Treatment at the Center includes a comprehensive program which, by army regulation, is taken by all rehabilitees for a period of 6 months or more. During this period they are exposed to daily sessions of group psychotherapy for the purpose of re-education in the values and goals of life. Case histories are carefully assembled to facilitate personality analysis, and are used as a basis for subsequent individual psychotherapy. Reassurance, persuasion, suggestion and critical discussions are woven into a therapeutic pattern for bringing into view those personality deficiencies which the soldier has deceptively or unconsciously hidden from himself. He is constantly encouraged to work towards more worthy and emotionally mature goals, and it is repeatedly demonstrated that the results are dependent on his sincere and understanding efforts to rid himself of pernicious habits. Individual therapy also emphasized the fundamental principles or habits which were not absorbed early in life, educated them in the differences between alcoholism and social drinking, and paved the way for the practical application of this knowledge to their everyday problems.

In coordination with this psychiatric program, a thorough and fundamental grounding in military drill and field training is afforded daily. This gives the rehabilitee the feeling that he is once more a soldier and having gone through many exercises which he had previously evaded, he grows more confident in his military ability, and can devote more time to the many other problems that confront him in the Army. At night he attends various schools in radio communication, mechanics, field regulations, army regulations, etc. These classes occupy his spare time with developmental subjects, and take the place of the phantasies and various reality-evading schemes that soldiers are wont to think up. Other activities such as interviews with the chaplain, religious services, recreational outlets, and occupational therapy are regularly carried out and make an important contribution toward rehabilitation of these men.

Although the Center has been in operation only 22 months, the reports that have been coming back (from organizations to which rehabilitees have been restored) indicate that a very great majority have responded well to the program. Assuredly many of our men, (as shown by the figures above) did not have alcoholic problems, but in a survey of reports on men who have been restored for more than 12 months most of those

classed as 'alcoholism' have been in little or no trouble. They are subjected to considerable stress and strain by being in new outfits and readjusting to new commanders; and yet the reports indicate greater stability, with many promoted to grades of corporal, sergeant, and a few to those of staff and technical sergeants.

From experience with alcoholics in civil and military life, and with those at the Center, it was found that the parents, relatives and the general public have been given relatively little information or education concerning alcoholism, *i. e.*, differences between social drinking and chronic alcoholism, the specific allergy of some personalities to alcohol, etc. In casting about for a means of combating the development of alcoholics, it became quite apparent that informative and detailed programs for the education of the general public, and the re-education of the chronic alcoholic, would be very potent weapons. Indeed, it is my personal opinion that these 'health' programs should be given such extensive communal distribution that they would assume the dimensions of national or world wide publicity.

CONCLUSIONS

1. A new alcoholic terminology was developed to bridge the 'gap' between the social drinker and the chronic alcoholic.

2. About a third of our population shows essentially normal personalities, and psychoses and psychoneuroses are quite rare.

3. Although many people express the view that alcoholism originates in the Army; a careful survey showed that this was an exceedingly rare occurrence.

4. Those who were diagnosed chronic alcoholics (in the Army) generally showed a previous history of drinking for 5 to 15 years.

5. Survey of case records indicates that an overwhelming majority of alcoholics have an underlying defect of schizoid or neurotic personality.

6. The thorough program promulgated at this Center has been effective in treating and reeducating alcoholics, and is particularly successful in those labeled 'alcoholism.'

7. A most recent review of more than 550 men restored to duty from the 5th Service Command Rehabilitation Center in the last 2 years (alcoholics and others) revealed that less than 5% had to be returned to a disciplinary barracks.

8. Education of the public, and reeducation of chronic alcoholics on a scale of world wide publicity is advocated as an important method of prophylaxis.

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"DELAY" (PAVLOV) IN HUMAN PHYSIOLOGY

Sleepiness on Delayed Response to Stimuli

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The significance for human physiology of Pavlov's work on cerebral inhibition deserves more attention than it has received. In particular, his work on the relation of inhibition to sleep throws a remarkably clear light on narcolepsy and on other problems of sleep, normal and pathological(1, 2). One phase of his work—that dealing with sleep occurring in response to "delay"—has such a clear application to human behavior as to be worthy of note.

Consideration of Pavlov's work may begin with the conditioned reflex. An animal, for example, is allowed to hear a bell (conditioned stimulus), and 1 to 5 seconds later is given some meat (unconditioned stimulus). When this occurs regularly the animal learns that the bell is the forerunner of meat and will salivate on hearing it. The offering of meat after bell is termed reinforcement. If a conditioned reflex is to be maintained, it must be regularly reinforced, *i. e.*, the bell must always be followed by meat. If, the reflex having been established, reinforcement is discontinued, the reflex will weaken and disappear.

Pavlov discovered four methods of inhibiting conditioned reflexes, of which "delay" is one. This method concerns the time interval which separates the moment of application of the conditioned stimulus and the moment of reinforcement. When a reflex has been established in the ordinary way (the conditioned stimulus being reinforced in from 1 to 5 seconds), the reflex response appears almost immediately after the conditioned stimulus. One may now progressively lengthen the time interval between stimulus and reinforcement; one may, for example, offer the meat as much as 3 minutes after the bell has begun to sound. As the interval is lengthened, the reflex response is correspondingly delayed, so that saliva appears only after a "latent period." Thus by using a time interval of 3 minutes, one may train the animal to begin to salivate $2\frac{1}{2}$ minutes after the start of the bell—a remarkable degree of adaptation.

Assuming that in the conditioned animal the bell arouses excitations in cerebral salivary areas, Pavlov asked himself what happens in these areas during the latent period. Are excitations not yet in existence during the latent period—that is, are they aroused only after the latent period is over? Or, on the other hand, are they present during the latent period, being held in check or inhibited till the period has expired? His experiments gave an unmistakable answer. He found, for example, that if during the latent period one subjects the animal to an alien stimulus having nothing to do with bell or meat, a stimulus never before used in working with that animal, there follows an immediate and copious outpouring of saliva. This and other evidence shows that excitations are present in salivary areas in full force throughout the latent period, but are held in check by an inhibitory process till a more suitable moment for salivation has arrived.

The remarkable and significant thing is that the four methods of producing inhibition, of which delay is one, tend to make the animal *sleepy*. Thus in experiments involving a delay of only 10 or 15 seconds the animal remained alert throughout the course of the work, "but so soon as the reflex was delayed for 30 seconds drowsiness and sleep appeared. The quick transition from full alertness into true physiological sleep, due to this seemingly insignificant change in the experimental conditions, is amazing"(3) (p. 252). Even more amazing are those instances in which, having fallen asleep during the latent period, the animal wakes shortly before the moment when meat is expected. In these cases the animal "falls asleep each time exactly at the beginning of the action of the conditioned stimulus. The eyes close, the head droops, the whole body relaxes and hangs on the loops of the stand, and the animal emits an occasional

snore." After the lapse of a definite period of time—25 seconds in experiments involving a delay of 30 seconds, and about 2 minutes in those involving a delay of 3 minutes—"the animal quickly and spontaneously awakens and exhibits a sharp alimentary motor and salivary response"(3) (p. 361).

Pavlov drew two conclusions. (1) Both excitation and inhibition play a rôle in the animal's adaptation to external circumstance. Thus, in the experiments on delay, excitations permit the animal to react appropriately to a conditioned stimulus, while inhibitions hold them in check until a relatively opportune moment, thereby perfecting the animal's power of adaptation. (2) From a mass of evidence too voluminous to give here, Pavlov concluded that sleep is nothing more than a manifestation of inhibition widely irradiated over the cerebral cortex (and probably subcortical centers as well).

It may seem a far cry from the laboratory with its seemingly tall animal stories to human beings, yet it may be shown that every person past the stage of infancy daily finds himself in situations which duplicate (in principle, of course) the experimental conditions of delay. Reference here is to all those situations in which a person anticipates the expression of an impulse which must be held in check because the moment is not appropriate. Thus a runner is about to run a race but must wait an hour till his race starts. He is eager to get going. There are excitations in his motor centers, just as there are in the cerebral salivary centers of an animal that has just perceived a stimulus which it knows means meat; and, again as in the animal, these excitations in motor centers must be held in check until the proper moment—the start of the race.

Now it is precisely in such situations that people are apt to show signs of sleepiness, even to the extent of falling sound asleep. The celebrated runner, Gene Venzke, describing his reactions before a championship race (*Saturday Evening Post,* June 13, 1936), wrote that as he lay on a couch a half hour before starting time, "I felt sleepy. I couldn't keep myself from yawning. But it didn't worry me. It was a good sign. When you're right, you feel that way before a race—ready to sleep at the drop of a hat." This description is so telling, and so meaningful in the light of what has already been said, as to make further illustration almost unnecessary. A few more examples, however, will be cited.

Reporters at the Olympic Games in Berlin in 1936 called attention to the remarkable picture of the Negro track stars as they lay on the grass before their events, limber as kittens, yawning and dozing in perfect relaxation.

Actors and speakers feel sleepy while awaiting their cue or their turn to speak. At meetings I have several times found myself yawning while waiting for the speaker ahead of me to finish. An eminent physiologist with whom I discussed this matter recalled the following experience of his own. Early in his career, when about to make his first appearance before a nation-wide scientific gathering, he fell asleep sitting in the front row during the address of the speaker ahead of him, and slept till he was wakeened by the applause that followed that address.

The lesson of these examples is plain. The speaker or artist or athlete awaiting his turn to perform is keyed up. There are excitations in cerebral centers "clamoring for expression," but they must be held in check till the proper moment. They are held in check by inhibitions, which may, so to speak, overshoot the mark, flooding the cerebral cortex with inhibition, thereby causing sleepiness.

Though the examples given deal with athletes and speakers, it is readily seen that the same principle applies to the everyday activities of all people past the stage of infancy, who must time the expression of their impulses so as to conform to social usages and requirements. It is believed that it applies to soldiers in the combat zone who are ready and eager to fight but must wait for contact with the enemy, though I do not know whether anyone has found, or has looked for, instances of sleepiness under these conditions. In this connection it should be noted that inhibition may exist without manifest sleepiness. Pavlov showed that even in the alert animal there are areas of inhibition scattered over the cerebral cortex. The simultaneous existence of areas of inhibition and areas of excitation scattered

over the cortex led Pavlov to liken the cortex to a "mosaic of functions." It is only when inhibition has gained the upper hand and has blanketed a sufficiently large area of cortex that sleepiness become manifest. The clinical manifestations of inhibition which has not reached the point of causing overt sleepiness lie beyond the scope of this paper.

SUMMARY

When a person, eager to give expression to an impulse, restrains himself till an opportune moment (for example, a runner awaiting the start of a race), one is dealing with an experiment of Nature which duplicates, in principle, Pavlov's experiments on "delay." Excitations are roused by a conditioned stimulus but are held in check by inhibitions pending arrival of the proper moment. The sleepiness which man and lower animal alike sometimes show under these conditions signifies that the inhibitions have, so to speak, overshot the mark and have irradiated widely over the cerebral cortex.

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CONVULSIVE STATES AND COMA IN CASES OF ISLET CELL ADENOMA OF THE PANCREAS [1]

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Introduction

Insulin shock was recognized soon after insulin had been introduced for the treatment of diabetes(1). The existence of hyperinsulinism as a clinical entity opposite to diabetes, was postulated by Harris(2) who in 1924 described spontaneous states of hypoglycemia in 5 patients. All of these suffered from weakness, nervousness, anxiety and excessive hunger and some in addition of abdominal distress, sweating and pallor. The disorder occurred in attacks in the early morning or several hours after a meal and was always relieved by food, especially starches.

Hypoglycemia may occur as the result of a variety of clinical disorders, due to hepatic, pituitary and adrenal dysfunction to name the most important ones. These forms of hypoglycemia are usually not too difficult to differentiate clinically from each other and from that produced by hyperinsulinism. Adenomata or more rarely carcinomata of the islet cell apparatus of the pancreas are found in a large percentage of the cases of straight hyperinsulinism. The first of these cases was reported by Wilder in 1927(3) and over 150 have been verified since. The subject has been reviewed repeatedly by Whipple(4) whose triad has become a practical clinical guide, especially as to the indication for surgical intervention in cases of hypoglycemia. It consists of "1. Attacks of nervous or gastrointestinal disturbances coming on in the fasting state, associated with 2. a hypoglycemia with readings below 50 mg. percent, 3. relieved immediately by the ingestion of glucose."

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Clinical Material and Methods of Investigation

The present study is a review of 27 cases of verified islet cell adenoma (benign or malignant) of the pancreas. The review is mainly directed towards the neuro-psychiatric manifestations as convulsions, coma and related states of impaired consciousness. Some of the earlier cases have been the subject of previous clinical reports(5). This series includes all cases seen during the past 12 years on the services of the Neurological Institute (14 cases) on the medical (8 cases) and surgical (3 cases) services of the Presbyterian Hospital and at Harkness Pavilion (2 cases). The tumors were all verified operatively on Dr. A. O. Whipple's service and by subsequent histological studies(6).[2]

In addition to elaborate clinical observations all patients had repeated determinations of the fasting blood sugar level, and with a few exceptions also one or several dextrose tolerance tests, both before and after operation. In several cases adrenalin tolerance tests were also made.

The last 11 patients of our series had electroencephalographic (EEG) studies in addition to the other tests. Repeated observations were made in all cases except one. They included tests in the fasting state followed by observations after injection or ingestion of glucose or in one instance after a meal. Five patients had parallel series of repeated EEGs and sugar tolerance tests in observations extended for 2-4 hours after previous determination of the fasting EEG pattern and sugar level.

The EEG records were obtained with a six-channel Grass ink-writing oscillograph. Six electrodes (flat solder discs) were applied in standard bilateral frontal, parietal and occipital positions. "Monopolar" leads were used with bilateral grounded ear-leads

[2] Dr. Whipple kindly gave permission to use his records.

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TABLE I

Case No., Etc.	History	Autonomic signs	Somatic neurological signs	"Psychomotor" signs	Seizures and seizure "fragments"	Operative and histological findings	Follow-up
1. E. S. 28 M. 306695	3 years, attacks at irregular intervals.	Abdominal pain, nausea, vomiting, lightheadedness.	Paresthesias "drawing" arms and legs.	Excitation, "mania," confusion.	None.	2 separate adenomata found in 2 operations.	Well after 2nd operation, but in 1936 diagnosed as psychopathic personality.
2. F. M. D. 46 F. 350794	4 years, attacks once a month. Refused operation for 3 years.	Nausea, vomiting, headache, dizziness.	Visual disturbance transient hemiplegia, transient aphasia.	"Queer" behavior.	Coma, fainting spells with incontinence.	Adenoma.	Well for 4 years post-op.—1935 admitted to State Hospital for anxiety state.
3. F. K., 33 F. 389424	1 year, attacks several months apart.	Headache, sweating.	Transient Babinski and Chaddock signs. Transient diminution of deep reflexes, "oculogyric" spasms.	Incoherence, giggling, grimacing, homicidal and suicidal threats.	Coma, slow "purposeless" movements, amnesia.	Adenoma.	Well after operation.
4. S. B. 47 F. 421465	9 months, daily attacks for past 6 months.	Headache, sweating, coldness, pallor.	Transient blindness, nystagmus, colored scotoma and aphasia.	Confusion, negativism, irritability, lability and restlessness.	"Purposeless" thrashing movements, chewing, amnesia.	Adenoma.	Well after operation.
5. W. P. 39 M. 428308	12 years, attacks of increasing frequency, eventually every 3-5 days.	Vomiting, sweating.	Diplopia and transient aphasia.	Confusion, disorientation, "twilight" states, "queer" behavior, hypomania, amnesia.	None.	2 adenomas.	Well after operation, but had "reactive" depression 6 months post-op.
6. H. K. 28 F. 434384	6 years, attacks at first once a month, for past 3 months daily.	Headache, sweating.	Diplopia, "distant" appearance, blurred vision, paresthesia arms and legs, tremor, transient aphasia.	Confusion, irritability, pugnaciousness.	Coma, generalized convulsion, amnesia.	Partial resection adenoma found.	Persistent nervousness and fatigue, otherwise well.
7. E. S. 26 F. 475076	6 years, attacks irregular.	Dizziness.	Transient hemiplegias once for 1 month with persistant hyperactive reflexes.	Confusion and disorientation.	Generalized convulsions, clonic twitches of muscles, coma, amnesia.	1. Partial resection. 2. Adenoma found.	Recurrence of attacks after 4 years. Well after 2nd operation.
8. A. M. 52 M. 510933	1 year, attacks of increasing frequency, daily past 6 weeks.	Pallor.	None.	Confusion, drowsiness, walking and singing in dazed state.	Coma, amnesia.	Carcinoma found, partial resection.	Died 5th post-operative day of bronchopneumonia.
9. Z. G. 45 F. 512939	9 months, attacks at irregular intervals.	None.	Clumsiness of movements.	Confusion, "silliness," *fugues*.	Coma, twitching of muscles, especially	2 separate adenomata found in 2 opera-	Well after 2nd operation.

7. E. S. 26 F. 475076	6 years, attacks irregular.	Dizziness.	or, transient aphasia. Transient hemiplegias once for 1 month with persistant hyperactive reflexes.	Confusion and disorientation.	Generalized convulsions, clonic twitches of muscles, coma, amnesia.	1. Partial resection. 2. Adenoma found.	Recurrence of attacks after 4 years. Well after 2nd operation.
8. A. M. 52 M. 510933	1 year, attacks of increasing frequency, daily past 6 weeks.	Pallor.	None.	Confusion, drowsiness, walking and singing in dazed state.	Coma, amnesia.	Carcinoma found, partial resection.	Died 5th post-operative day of bronchopneumonia.
9. Z. G. 45 F. 512939	9 months, attacks at irregular intervals.	None.	Clumsiness of movements.	Confusion, "silliness," *fugues*.	Coma, twitching of muscles, especially of face.	2 separate adenomata found in 2 operations 9 months apart.	Well after 2nd operation.
10. J. M. 22 F. 530663	3½ years, attacks when missing meals.	None.	Weakness, slowness, transient aphasia.	None.	Coma.	1. Resection of body and tail. 2. 3 months later adenoma found in head of pancreas.	Recurrence of attacks. Well after 2nd operation, but nervous, jittery, vague and unreliable personality.
11. T. S. 50 M. 540606	6 months, attacks at irregular intervals.	Sweating.	Right hemiplegia for 2 weeks, transient left hemiplegia during attacks.	Confusion, incoherence, walking and talking in states of confusion, incoherence, "silliness," *"arc de cercle"* (see comment).	Unconsciousness with twitching movements right side, incontinence, amnesia.	Carcinoma removed.	Well after operation.
12. M. O. 21 F. 546637	1 year, attacks at irregular intervals.	Dizziness.	Diplopia, weakness, tremor, hyperactive reflexes, tendency to falling.	Confusion, walking around. Mental sluggishness.	None.	Carcinoma removed.	Well after operation.
13. C. K. 22 F. 554410	8 months, few attacks, 2 severe ones 1 month before operation.	Sweating.	Areflexia.	None.	Coma, stupor, fainting spells, amnesia.	Adenoma removed.	Well after operation.
14. A. F. 55 F. 563920	3 months, few attacks, on palliative treatment.	Dizziness and giddiness.	None.	Drowsiness, grimacing.	Fainting spells, "purposeless" thrashing movements.	Adenoma removed.	Died on 5th post-operative day of thyroid crisis.
15. O. A. 47 M. 583832	4 years, attacks increasing in frequency up to one every 2 weeks.	Dizziness.	Blurring of vision.	"Dream" states, amnesia.	Fainting spells.	Adenoma removed.	Well except for attacks of blurred vision ? migraine.
16. G. R. 50 F. 592078	7 years, attacks of increasing frequency every day during last year.	Dizziness, sweating.	Diplopia, cramps of muscles of hands, generalized tremor.	Confusion, drowsiness.	"Purposeless" movements, amnesia.	Adenoma (?) malignant.	Well after operation.
17. H. R. 53 M. 605580	3 months, repeated attacks of increasing severity.	Dizziness, sweating, ravenous hunger.	Spasticity on right side.	Confusion, disorientation.	Fainting spells, coma with "thrashing" unilateral movements, one seizure observed.	Carcinoma.	Died, autopsy showed *metastases to liver.*
18. W. T. 49 M. 657473	20 years, at first of irregular varying frequency, finally 12 attacks in 10 weeks.	Dizziness, lightheadedness, sweating, precordial constriction palpitation, abdominal pain.	Blurring of vision, dysesthesia of finger tips and of lips, incoordination of muscles.	Confusion and inability to concentrate.	Coma.	Adenoma (?) malignant.	Well except for rare blurring of vision.
19. M. K. 49 M. 672372	2½ years, slight attacks 3-7/week, 3 severe attacks past 2 months.	Abdominal sensation, ascending to mouth.	Tingling sensation of tongue and lips, spreading to both arms and fingers.	Confusion, noisy, walking and running around.	"Purposeless" tossing and turning. Jacksonian sensory attacks.	Adenoma removed.	Well after operation.
20. M. L. 20 M. 679246	2½ years, attacks increasing in frequency from once in 2 months to once a week.	Epigastric sensation, headache, giddiness.	Diplopia, weakness of both hands, paresthesias.	Inability to concentrate, dazedness, *fugue* states with amnesia.	None.	Adenoma (?) malignant.	Well after operation.
21. S. G. 46 F. 680990	10 years, irregular attacks. History of operation for adenoma in out of town hospital with recurrence of attacks postoperatively.	Headache, dizziness.	Blurring of vision, dysesthesias of mouth, fingers and hemidysesthesia and heaviness of right side.	Confusion.	None.	Resection of body, tail and part of head. Adenomatosis found histologically.	Well except for attacks of blurring of vision.
22. S. A. 21 F. 702459	3 years, attacks at first 2 or more per week. Last year on palliative treatment 1 attack per month. (F. H. of diabetes.)	None.	Diplopia.	Confusion, dazedness, queer talk, attacks examiner, hysterical behavior, amnesia.	Coma, "purposeless" movements.	Adenoma removed.	Well after operation.
23. P. G. 47 F. 703228	16 months, attacks of irregular frequency.	Headache, sweating, epigastric pain.	Weakness and numbness both hands.	None.	Coma, amnesia.	Adenoma removed.	Well after operation.
24. T. V. 32 F. 617640	2 years, slight attacks daily, severe attacks once a week.	Headache, sweating.	Scotoma, numbness and tingling of lips, hands and fingertips.	Confusion, rambling talk.	Grand mal convulsions, coma with abnormal involuntary movements, incontinence, amnesia.	Partial resection, adenomatosis.	Well after operation.
25. C. S. 26 F. 715839	6 months, attacks every 3 weeks.	None.	Diplopia, inability to control arms and hands.	Inability to concentrate, rambling talk.	Coma.	Adenoma removed.	Well after operation.
26. E. F. 65 F. 725077	8 years, slight attacks, 8 months severe attacks.	Dizziness.	Diplopia, weakness and tremor of hands.	Incoherence, loss of memory.	Coma.	Adenoma removed.	Well after operation.
27. R. B. 55 F. 744209	3 years.	None.	Tremor.	Confusion, repetitiousness, unresponsiveness *fugue*, amnesia.	Twitching of muscles, rolling of head back and forth.	Adenoma (?) malignant.	Well after operation.

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as reference electrodes. In 4 instances a bipolar exploration for focal changes with a 16 electrode placement(7) preceded the routine test as described. A period of vigorous hyperventilation of 5 minutes' duration was included at all stages of the tests, except in those instances when fasting patients were too ill to cooperate. Following the administration of glucose or after intake of food, hyperventilation was always possible.

Clinical Symptomatology

A variety of neuro-psychiatric manifestations was found in all patients, usually clearly associated with the fasting state, early in the morning or when a meal had been missed. In severe cases symptoms recurred a few hours after intake of an apparently adequate amount of food. Most patients were aware of the relation between their clinical signs and the fasting state and many of them, increasing their food intake in attempts to prevent hypoglycemic states, had become quite obese.

The clinical data were divided into four groups: (1) autonomic visceral, (2) somatic neurological manifestations, (3)psychomotor phenomena, and (4) fragmentary and full-blown seizures or related states and their sequelæ. Abnormalities in behavior of an episodic nature with or without apparent intellectual changes and often with subsequent amnesia were recorded as psychomotor signs. Fainting spells, states of coma with or without a motor component, as well as true convulsive seizures were recorded in group 4.

Table I is a brief summary of the histories, the four groups of clinical data, the operative and histological findings, and the clinical outcome.

One or several *autonomic-visceral* manifestations were noted in 22 patients. The most common were lightheadedness and sweating which occurred in 13 and 12 cases respectively. Headache was a complaint in 8 cases, abdominal pain in 4. Nausea, vomiting, pallor, subjective coldness, ravenous hunger, precordial oppression and palpitation were less frequent complaints.

Somatic-neurological abnormalities were found in 25 patients. Involvement of the motor system was found in 16 of these. The incidence of motor dysfunction is as follows: Weakness and tremor each were found in 5 patients, 4 showed incoordination of movements, 3 had hemiplegias—one with a residual hemiparesis with increased deep reflexes, another had 2 episodes, one lasting for a day, the other for a month, 3 had diminished or absent reflexes during the attack, 1 had positive Babinski and Chaddock signs during the attack, 1 had a hemispasticity during the attack.

Sensory disorders, mostly paresthesias were found in 15 patients. Six of these had paresthesias of hands and fingers, 3 each of arms and legs, 3 had perioral dysesthesias of a suggestive "onion peel" distribution, 2 had painful hemidysesthesias and 1 had paresthesias limited to the tongue.

Fifteen patients had disturbances of vision or of the extraocular motor system. Seven of these had diplopia, horizontal or vertical, 5 had blurring of vision, 1 had a transient amblyopia, 2 had scotomata, 2 spontaneous nystagmus, 1 attacks resembling oculo-gyric crises, 1 had micropsia. Only one had dilated pupils as a separate sign (not associated with coma or during a fit).

Five patients had transient states of aphasia.

Psychomotor symptoms occurred in practically all patients. Most frequently seen were confusional states (16 times), dulness (8 times), "noisy behavior" (6 times), and "incoherence" (5 times). Inability to concentrate, "silliness," irritability and so-called "functional" behavior were each seen in 3 instances. Three patients had histories of states of fugue. Suicidal attempts, homicidal rages and many other behavior disorders were studied. One patient went into "arc de cercle" in one of her attacks.[8]

Phenomena suggestive of *fragmentary or full-blown seizures* were noted in 22 patients. Deep coma was seen in 15 patients. Nine showed slow "purposeless" random and thrashing movements, not clearly convulsive and by some observers described as suggestive of extrapyramidal dyskinesias. These movements occurred in several instances during states of coma. Five patients had fainting spells, in 5 cases actual grand mal attacks were observed on the wards; 3 had

[8] See comment.

muscle twitches, 2 had clearly clonic movements and 1 had sensory Jacksonian episodes without loss of consciousness. Two patients had "staring" spells, very suggestive of petit mal; 1 patient had episodes of incontinence, not associated with a full-blown convulsive attack; 15 patients had amnesia for these manifestations.

The duration of the histories varied between 3 months and 20 years. In all instances the attacks became progressively severe and frequent.

Twenty-three patients had one, the remaining 4, two operations. Tumors were found in 25 cases at operation; 17 of these were adenomata, 8 carcinomata or malignant adenomata. In 2 cases no tumors were found but histological studies of resected portions of the pancreas revealed adenomatosis of the islet cell apparatus.

Three patients died after the operation, 1 of bronchopneumonia, 1 in a thyroid crisis and 1 with a metastasis to the liver.

Follow-up studies show that 1 patient had first an "anxiety" state and several years later a manic-depressive psychosis, manic phase. One patient had a reactive depression, 1 patient was considered a psychopathic personality, 2 remained extremely "nervous and jittery" and were considered "unstable and unreliable." Three patients had recurrent attacks of blurred vision without other signs. None had recurrent hypoglycemic states. The 7 surviving patients in whom malignant tumors were found histologically had no metastases and remained well.

Fasting Blood Sugar, Glucose Tolerance Curves and Adrenalin Tests

Fasting blood sugar values vary greatly in different determinations made on the same patient. In one of our cases the figures range from 27 to 69 milligram per 100 ccs. of blood, taken on different days during the same hospital stay. The lowest preoperative value in our series is 20, the highest 85 milligram percent. Postoperative figures are at first on a "diabetic" level and then fall gradually to normal.

Glucose tolerance tests show also considerable variations. However several regularly recurring trends are found. The results of 25 tests, done on 22 of our patients are shown in Table II. In 3 instances 2 tests are reported for the same patient. Fifteen tests show a clearly "diabetic" pattern with a peak 2 or 3 hours after ingestion or injection of glucose. In 9 of these the absolute values for the 2nd or 3rd hour are actually in the diabetic range. The highest recorded figure is found in case 22 with a blood sugar reading of 294 milligram percent after 3 hours.[4] "Flat" curves are relatively rare, occurring 4 times. Case 13 shows a "diabetic" and a "flat" curve, taken about 1 month apart. In a few instances as in cases 9 and 10 the end values are considerably lower than the first fasting figures.

Several causes probably contribute to the wide variations in blood sugar levels and to those in the glucose tolerance curves seen in individual patients. It appears justifiable to assume a paroxysmal rather than a continuous dysfunction of the islet cell apparatus in most cases. Spontaneous readjustment, by mobilization of glycogen stores or of adrenalin is very likely and is in fact the only explanation for spontaneous recovery from at first undiagnosed states of profound coma, reported in 15 of our case histories. This is furthermore borne out by the result of prolonged observations on fasting patients, in whom a spontaneous rise of the blood sugar level is found. Irregularities in the carbohydrate and protein metabolism on the days preceding a glucose tolerance test tend to change the form of the tolerance curves in normal subjects, in undernourished patients and in patients suffering from hyperinsulinism. Previous restriction in carbohydrates leads to high peaks in the tolerance curves. This was shown by Conn(8) who also points out that carbohydrates derived from a high protein diet are released much more slowly and evenly with the result that both the initial elevation and the secondary fall of the blood sugar levels are avoided. Another significant observation along these lines was reported by Apple and Hughes(9) who found in treating psychotic patients with insulin, that insulin, given over periods as long as 2 months in daily doses large enough to produce coma in patients with normal carbohydrate metabolism, results in eleva-

[4] This patient had a family history of diabetes.

TABLE II

No.	Name	Age	Sex	Case No.	Fasting	½ hr.	1 hr.	1½ hr.	2 hr.	2½ hr.	3 hr.	4 hr.	5 hr.	6 hr.	7 hr.
2.	F. M. D.	46	F.	350794	58	104	130	...	119						
3.	F. K.	33	F.	389424	35	250	176	115-4	71-4						
4.	S. B.	47	F.	421465	52	130	105	133	162						
6.	H. K.	28	F.	434384	64	108	148	...	133						
7.	E. S.	26	F.	475076	33	176	188	205	197						
	E. S.	26	F.	475076	33	160	156	...	178	...	114				
8.	A. M.	52	M.	510933	59	132	232	...	194	...	168				
9.	Z. G.	45	F.	512939	57	...	154	191	210	238	200	129	99	43	37
10.	I. M.	22	F.	530663	48	...	74	83	102	63	64	48	37	55	27
11.	J. S.	50	M.	540606	30	98	91	...	141	...	43				
	J. S.	50	M.	540606	35	103	147	...	163	...	141	115	75		
12.	M. D.	21	F.	546637	48	108	96	...	246	...	203	116	62		
13.	C. K.	22	F.	554410	71	143	154	...	170	...	...	137			
	C. K.	22	F.	554410	44	77	45	48	44	56					
14.	A. F.	55	F.	563920	45	89	92	...	90						
15.	O. A.	47	M.	583832	42	...	75	...	...	48	47	40			
16.	G. R.	50	F.	592076	40	147	110	...	131	...	118 (3½ hr.)				
						5 min.									
17.	H. R.	53	M.	605580	38	133 125	85	...	58	...	41				
18.	W. J.	49	M.	657473	57	70	57	...	57	...	37				
19.	M. K.	49	M.	672372	45	58	143	...	176	...	158	161			
20.	M. L.	20	M.	679246	40	62	133	...	161	...	154				
21.	S. G.	46	F.	680990	53	52	34	...	66	...	65	43			
22.	S. A.	21	F.	702459	36	88	172	...	166	...	294	246	141		
24.	T. V.	32	F.	617640	41	110	97	...	115	...	96	54	39		
27.	R. B.	55	F.	744209	48	174	221	248	261	...	224	127			

tions of the glucose tolerance curves. This effect disappears 2-3 months after cessation of the insulin administration. It is conceivable that secreted insulin acts in the same way, provided "shock" is produced.

We have seen only minor differences between curves obtained after intravenous injection of glucose and those following ingestion by mouth except for the higher initial rise with intravenous administration. Even this was not constant.

In several instances as in our cases case 7 and case 11 a considerable rise in the blood sugar level in fasting patients was seen after the injection of 1 cc. of a standard solution of adrenalin. The figures in these 2 cases are as follows:

Case No.	Fasting	15 min.	½ hr.	1 hr.	1½ hrs.
7	29	75	107		
11	43	49	76	80	83

In another case, 1, no effect was noted within 45 minutes, the figures being 50 mg. percent fasting and 53, 56 and 55 mg. percent respectively in 15 minute intervals.

The physiological antagonism of insulin and adrenalin was discovered by Cannon (10) and was interpreted as a mechanism for automatic recovery of a disturbed equilibrium. One is tempted in the light of these positive adrenalin responses, to consider the episodes of rage, classified under "psychomotor" manifestations as well as other "functional" behavior changes as life-saving functions indicative of what Cannon has termed "wisdom of the body"(11).

Electroencephalographic Findings

On the last 11 patients of our series (cases 17-27) EEG studies were performed. The first of these patients was subsequently found to have liver metastases from a primary carcinoma of the pancreas, which in retrospect suggests a certain caution in the interpretation of his clinical and laboratory findings. He had a single routine examination with strikingly abnormal findings in spite of the fact that the record was taken in the midmorning after breakfast. The record showed high voltage 2-3/sec. activity in synchronous bursts in all leads, lasting up to 4 seconds and often with suggestive spike-and-wave patterns. No further change was seen with hyperventilation.

In 5 patients the fasting records were compared with those after oral or intravenous administration of glucose. In one case the patient was re-examined after a meal and in another case, in which a seizure occurred in the fasting state an injection of glucose was required to abort the seizure after which the patient had a meal before re-examination. Eight of these observations were made, one of the patients being studied twice, another 3 times. In 2 instances repeated tests during a prolonged fast were made. On 3 occasions small amounts of glucose (7.5-8.5 gms.) were given by intravenous injection in an attempt to study the onset and duration of the effect of glucose.

All 8 records were quite abnormal in the fasting state. In 4 instances high voltage slow activity was recorded in synchronous bursts all over the head and with more or less clearly recognizable spike-and-wave groups occurring off and on. The slow activity ranged from 2-4 cycles per second in 1 case, from 2-5 cycles per second in 2 cases and from 5-7 cycles per second in 1. Three of these patients were too ill to hyperventilate, the fourth was able to cooperate but the record did not show any further changes. Two of the records became fully normal after 50 gms. of glucose and did not change with vigorous hyperventilation. The other 2, after injection of 7.5 and 8.5 gms. of glucose respectively showed a marked improvement with only rare medium-voltage 5-7/sec. activity, without synchronous bursts and without spike-and-wave groups. In one of these 2 records a slight slowing was seen in response to hyperventilation.

The other 4 fasting records were less markedly abnormal (5-7/sec. activity) before hyperventilation but with the additional stress of hyperventilation all showed high voltage 2-4/sec. activity with a tendency to synchronization and with spike-and-wave groups. In one of these observations the fast was prolonged for another 2 hours when high voltage 2-4/sec. activity appeared. At this time the patient was too ill to hyperventilate. One other patient showed bursts of rapid (15-20/sec.) activity in the fasting state. She had a seizure shortly afterwards and after glucose and a meal some of the rapid activity persisted, though the slow activity had disappeared. In the other 3 cases

the activity after glucose was completely normal. In another not too well controlled repeat 2 hours after a meal the EEG activity was not much different from that in the fasting state, namely 4-7 cycles per second with a few atypical spike-and-wave groups and with slight further slowing in response to hyperventilation.

One of the patients with markedly abnormal EEG activity while fasting had 7.5 gms. glucose administered by intravenous injection. Twenty minutes later the record was found to be fully normal and hyperventilation was without influence. About 50 minutes after glucose the basic record showed the first signs of irregularity and a marked response to hyperventilation. About 90 minutes after glucose the record was again quite abnormal, consisting of medium to high voltage 3-5 per second activity. At this time hyperventilation had no further effect on the EEG pattern.

In another group of 5 patients (cases 18, 19, 20, 21, and 27) elaborate series of EEG tests were made, timed to coincide with glucose tolerance tests. The fasting records in this group were similar to those in the group just described, in that 3 were markedly, 2 moderately abnormal. The markedly abnormal records showed high voltage very slow activity with synchronous bursts and with occasional spike-and-wave bursts from the beginning. The moderately abnormal records showed medium voltage moderately slow activity and some rapid activity prior to hyperventilation; with hyperventilation they too became markedly abnormal with the characteristic features as described. The fasting blood sugar values ranged from 40 to 57 milligram percent. There was no clearcut relation between the degree of EEG abnormality and the sugar levels.

One-half hour after glucose the blood sugar values ranged from 52 to 174 mg. percent. At this time three of the EEG records (52, 58, and 70 mg. percent) were essentially normal, one (62 percent) was mildly, one (174 mg. percent) was still moderately abnormal. The result of hyperventilation at this time was slight slowing of the EEG in 2 instances, namely in one of the essentially normal and in the mildly abnormal records. The other 3 were not influenced by hyperventilation. One hour and 2 hours after glucose, 4 of the records were normal or essentially normal and showed little or no changes with hyperventilation. After 3 hours 2 showed slight irregularities in the "baseline" patterns.

The last one of these records (case 21) is of clinical as well as of theoretical interest. This patient had a fasting sugar of 53 mg. percent and a markedly abnormal EEG record. A striking improvement was seen ½ hour after glucose had been administered in spite of an unchanged sugar level (52 mg.) at this time. About 1 hour after administration of glucose she had an emotional upset. At this time her blood sugar level dropped to 34 mg. percent. Her respiration became deep and frequent, amounting to spontaneous hyperventilation. During this episode the EEG record showed extremely high continuous slow activity at a rate of 2-4 cycles per second. As she calmed down, the slow activity gradually faded out and after about 10 minutes the EEG record was more nearly normal. Without further clinical measures the blood sugar rose to 66 mg. percent 2 hours after glucose intake, remained at 65 for 3 hours and dropped to 43 4 hours after administration of glucose with an essentially normal EEG record during all this time and with only slight changes during hyperventilation 2 hours and 4 hours after glucose intake.

Comment

Brain tissue differs from all others in that it obtains its energy by oxidizing carbohydrates exclusively(12). Interference with the cerebral or general carbohydrate metabolism leads therefore to marked changes in the activity of the central nervous system. These changes have been studied extensively by experimental and clinical observations. As the result of these investigations, it may be stated in general terms that hypoglycemia, anoxia and anoxemia lead to the same primary type of dysfunction (Gellhorn, 13) while of course compensatory regulations differ in the different conditions.

Hepatectomy(14), the most radical and irreversible procedure, leads to a characteristic sequence of symptoms. They are: muscular weakness, loss of proprioceptic reflexes and flaccidity, loss of consciousness, the re-

turn and exaggeration of reflexes, muscular twitchings, convulsions, and in untreated animals, death within 2 hours after the onset of symptoms. At this time the blood sugar has dropped to 30 or 40 mg. percent and a striking depletion of the muscle glycogen is found to coincide with the drop in the blood sugar level. Complete temporary recovery occurs within 1 minute after intravenous injection of 0.5 gms. of glucose per kilogram body weight. About one-half of this amount is sufficient to maintain the animal for about 1 hour during the first stage of the experiment. Electroencephalographic changes(15) under the same conditions consist in progressive slowing and later on flattening of the cortical potentials, again with complete temporary restoration to normal following the injection of glucose.

Observations on schizophrenic patients during prolonged therapeutic insulin coma have furnished another and perhaps the most important body of data. Sakel (1935)(16) Frostig (1938)(17) and especially Himwich, Frostig, Fazekas and Hadidian (1939) (18) found the sequence of alterations in the cerebral functions of their patients strikingly suggestive of a successive dropping out of phylogenetic newer structures in the reverse order of their original appearance. Thus according to Himwich, five groups of symptoms can be separated from each other more or less clearly(19): "The first is referable to depression of the cerebral hemispheres and part of the cerebellum the highest layer in the brain. The second group is associated with the release of the activities of the subcortico-diencephalic layer. The third constellation of symptoms represents the liberation of the midbrain. The fourth frees functions regulated by the upper part of the medulla oblongata. The fifth is due to release of the lower portion of the medulla oblongata and its vital centers, respiratory, cardiac and vascular." The reason for this sequence of phenomena is the progressively increasing metabolic rate of the newer structures. The development of the symptoms is correlated with a gradual decrease of cerebral oxygen uptake and with progressive slowing of the EEG to 2-5 cycles per second. Similar EEG changes had been described by Hoagland, Rubin and Cameron (1937)(20) under the same conditions. The findings are identical with those seen in unconsciousness due to anoxia (Gibbs, Davis and Lennox, (1935)(21).

Our own EEG findings in patients suffering from hypoglycemia produced by tumors of the pancreas are identical with those reported by Himwich and his associates and by Hoagland and his associates during therapeutic insulin shock. This is not surprising in view of the similarity of the two phenomena. Furthermore, slow EEG activity appears always as the result of physiologic or pathologic depressions of the cerebral metabolic cycle(22). In addition to unpatterned slow activity bursts of synchronous somewhat atypical spike-and-wave activity are recorded in most of our patients at the height of the hypoglycemia, even in cases where no clinical convulsions were noted. In one case rapid activity occurred prior to a grand mal attack and persisted after the seizure had been aborted by injection of a large amount of glucose.

Our clinical findings show many of the elements seen as the effect of experimental hypoglycemia in animals and in therapeutic insulin coma in schizophrenic patients. There is, however, a significant difference in that we have never seen the full-blown sequence of symptoms develop in the order described by Himwich and his coworkers, except for the first two stages, which can often be identified. Needless to say, many attacks in our group of patients are abortive and consist only in autonomic-visceral signs. In others, however, severe states of coma or even grand mal convulsions appear abruptly, early in the individual attack and without obvious transitions through the various "layers." Convulsive seizures are seen more often in our group of patients (18.5 percent against 2.8 percent in Himwich's cases), though our total number of cases is statistically probably insignificant.

Signs of the first stage, autonomic manifestations and the effects of cerebral and cerebellar depression, appear at least in some episodes in most of our patients. They are usually scattered, at random and apparently unrelated. A number of patients report dysesthesias limited to circumscribed areas on one or both sides. In 3 different patients the dysesthesia was limited to a perioral zone, in another case to the tongue and one might

find it tempting to attribute this localization to the sensory nucleus of the trigeminal nerve instead of the cortex, especially in view of other, definitely nuclear signs involving the 3d, 4th and 6th cranial nerves (see below). In one patient the cortical phase was limited to sensory Jacksonian attacks. Weakness, incoordination, clumsiness and hemiparesis appear in a number of instances, the latter more or less persistent in 2 cases. Diminution or absence of proprioceptive reflexes and the appearance of Babinski's and Chaddock's signs can be explained by a cortical depression and need not be caused by the final, myelencephalic stage of the coma. The most consistent sign of cortical dysfunction is clouding of consciousness in one form or another as related under "psychomotor" symptoms. Blurring of vision to the point of amblyopia and transient states of aphasia were repeatedly noted. States of excitement and other behavior disorders were also encountered on a number of occasions. They are at times of a peculiar "functional" pattern and will be discussed later on.

Signs of the second stage, the subcortico-diencephalic phase according to Himwich are frequently seen in our patients usually in states of severely impaired consciousness. At this stage involuntary motor activity occurs, ranging from muscular twitchings and clonic movements to irregular, "purposeless," thrashing and rolling movements, at times suggestive of extrapyramidal motor disorders.

Other "dyskinesias" belong to the third, mesencephalic phase of Himwich. Among these are "torsion-spasm" and another "tonic" spasm, during which the trunk is arched, while the legs are held in rigid extension. It is interesting at this point to recall that "arc de cercle" was seen in one attack of one of our patients. It was then interpreted as a hysterical manifestation by the first examiner, but it might belong here. Other signs of the mesencephalic stage as incoordination of the extra-ocular muscles, nystagmus, etc., referable to involvement of the rostral group of cranial nerve nuclei and their connections appear early in the hypoglycemic attacks of our patients, usually before consciousness is severely impaired.

None of the severe, vitally critical signs referable to the premyelencephalic and myelencephalic phases of Himwich were identified in our group of cases. However, the perioral dysesthesias of "onion-peel" pattern and related signs of possible trigeminal nuclear involvement were found before severe coma occurred.

One of the reasons and possibly the principal one for the difference in the two clinical pictures of hyperinsulinism is presumably that in shock treatment standardized amounts of insulin are administered in an established routine with calculated amounts and under uniform conditions, while on the other hand the excessive production of insulin by tumors of the islet apparatus follows no known pattern, except that it might be presumably paroxysmal in some instances. In others the clinical picture suggests a continuous overfunction, though the rate at which the excessive insulin is produced might vary and is in addition under the influence of food intake and that of other endocrine glands.

Still two essential points are not satisfactorily explained by this difference in administration of insulin. They are the scattered and selective effects of hyperinsulinism in our group of cases and the abrupt appearance of severe clinical signs, some of which, as the hemiplegias, even tend to persist for a long time. These findings are too consistent to be explained by local anomalies of the blood supply in individual patients. A better explanation for the selectivity of certain signs is the possibility of local differences in the metabolic requirements of the individual layers though grossly they might appear uniform in their differences between each other. Thus it is perfectly conceivable that the visual and speech areas of the cortex require larger amounts of glucose than less differentiated cortical areas (for instance those regulating visceral-autonomic functions). It is furthermore quite probable that ganglion cell groups such as the nuclei of cranial nerves behave in this respect like cortical grey matter while other surrounding structures in the mesencephalon or myelencephalon follow the phylogenetic pattern outlined by Himwich. "Overpowering" of the central nervous system by a single massive therapeutic dose of insulin might even out these differences, while smaller amounts

produced by an adenoma and not leading to extreme coma would enable us to differentiate between different components of one and the same "layer."

The abrupt onset of coma and sudden convulsions, in both instances without apparent transition through the first two stages of Himwich are difficult to explain at the present stage of our knowledge of the mechanism of hypoglycemia.

Spontaneous recovery even from severe clinical symptoms was seen in the beginning of the disease in a majority of our patients. In this respect they differ from the patients subjected to therapeutic coma. This is most likely due to the fact that in cases of adenoma the coma is far less deep and it can be assumed that by mobilization of glycogen and by activation of adrenalin the blood sugar level is raised above the critical point. States of rage and other forms of "functional" behavior might thus be compensatory mechanisms rather than primary symptoms of hypoglycemia. On several occasions marked clinical improvement and return of the EEG pattern to normal was seen without changes of the blood sugar level, usually when its values were ranging around 50 mg. percent. It is conceivable that at this level a critical balance is possible.

"Hysterical" reactions during therapeutic coma were reported by Sakel in contrast to the psychotic manifestations of his patients. He concludes that psychic constitution or mental disposition is responsible for individual reactions in different patients. It is interesting in this respect to mention the psychological studies of Romano and Coon(23) and of Alexander and Portis(24) dealing with the psychosomatic make-up of patients who suffered from hypoglycemia and showed residual personality difficulties even after successful operations and cessation of the paroxysmal states of hyperinsulinism. Our own follow-up studies reveal that 2 patients had psychoses of the manic-depressive group and 3 others were considered as psychopathic personalities several years after operation.

Summary and Conclusions

This report is an analysis of neurological and psychiatric manifestations observed in 27 patients suffering from verified adenoma of the islet cell apparatus of the pancreas. In addition relevant laboratory data, mainly those related to the glucose metabolism and in the last 11 patients also the EEG findings are discussed.

The clinical data were arranged in four groups: (1) autonomic-visceral, (2) somatic-neurological, (3) "psychomotor" manifestations and (4) seizures and seizure fragments.

These four groups of data are then discussed in terms of anatomic-physiological levels using concepts established by Himwich. Our findings differ in several important aspects from those found in therapeutic insulin shock. An attempt is made to understand the reasons for this divergence.

Glucose tolerance curves in a majority of our cases are diabetic in pattern and often also in level. "Flat" curves are the exception in our experience.

The EEG findings are those to be expected in patients whose cerebral metabolism is depressed. In addition suggestive "convulsive" patterns such as spike-and-wave bursts are found in most of our patients, even those who had no clinical convulsive seizures.

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NEUROPSYCHIATRY AT THE UNIVERSITY OF AMSTERDAM, HOLLAND, 1940-1944

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During the years of occupation and scientific isolation, the department of neuropsychiatry under the leadership of Prof. Dr. K. Herman Bouman carried on. In the following, a brief review of collected papers is presented by a former member of this group.

A *delusional psychosis* occurring in a woman 38 years of age was studied by Van der Waals(1). Hallucinations, disturbance of the ego, presumed contact with the spirit of the dead and ideas of reference and of being an instrument of God for the salvation of mankind made the diagnosis of schizophrenia at first seem most likely. The error of such ready-made diagnosis is discussed. In the particular case there were no specific changes in the emotions and the character of the hallucinations was strikingly "unreal." More thorough investigation revealed that the psychosis was the pathological result of the life-long frustration of narcissistic and passive-erotic needs. This, as well as the effects of certain pathoplasic factors (marked drive to dominate, chronic preoccupation with spiritism and the patient's knowledge of a psychotic episode from which a sister had suffered) allowed a diagnosis of hysterical psychosis to be made. It is pointed out that the classification of the psychosis under Kleist's acute "Eingebungs psychoses" (as might be suggested on a purely descriptive basis) would not make scientific sense.

Tribute to Wagner von Jauregg is paid by his pupil, K. H. Bouman(2), who in 1921 brought to Holland the treatment of *general paresis with induced malaria.* Since then, the fever therapy with tertian and quartan malaria, followed by neoarsphenamine administration, has been highly developed as the treatment of choice at the department. Continuous follow-up studies on the spinal fluid were performed since 1935 when the ambulant lumbar puncture (Dattner's method) became a routine. Grewel(3) stresses the lack of parallelism between the clinical course and the reactions in the spinal fluid of paretics treated with malaria. For instance, several residual syndromes, such as the paranoid-hallucinatory (Gerstmann), the frontal-ataxic and that of the thalamus, were observed in spite of complete disappearance of changes in the spinal fluid. On the other hand, it was noted that the return to normality of the fluid in deteriorated patients was slower. In ordinary cases this may take five years or more.

Van Steenbergen(4) discusses the *puerperal psychoses* and attacks the German school which among these describes amentia as a separate clinical entity. Analysis and follow-up study of 85 cases revealed that differentiation between this condition and puerperal schizophrenia is of little value. As in the latter, usually the symptoms are influenced by exogenic factors (fever and disturbance of consciousness). Moreover, it is concluded that whenever a diagnosis of amentia according to descriptive-psychiatric principles seems justified the clinical course is in no way better than that of puerperal schizophrenia.

War psychiatric experiences in Amsterdam are reported by Fortuyn and Ploegsma (5). Acute and severe anxiety states with hysterical conversion in military casualities who did not evidence a psychopathic disposition, were of short duration. Civilians who required psychiatric attention were of a marked emotionally labile type. Mention is made of schizophrenic, manic and depressive states which were reactivated or provoked by emotional causes; these had a good prognosis.

The first-named author analyzes the *hypoglycemic state*(6) following the administration of insulin. He comments on its similarity to autonomic epilepsy and notes as a characteristic feature the unsteadiness of intensity of hypoglycemic symptoms.

The outbreak of *delirium tremens* according to Kat and Prick(7) is not provoked by sudden abstinence in chronic drinkers. Although they carefully examined this question

on the basis of 172 incidences in 134 individuals, an "abstinence-delirium" as described by Bostroem was not once encountered. The authors analyze the conditions that lead to the false conclusion that the delirium tremens can result from abstinence. These are: 1. Delirium tremens provoked by pneumonia which interferes with heavy drinking. 2. Delirious prodromal symptoms may be overlooked but they still mark the onset of cessation of drinking, and when finally the complete delirium breaks out, a history of temporary abstinence is obtained. 3. In a similar way relapses of delirium tremens may give the impression that the condition is subsequent to a period of abstinence.

Regarding the treatment, in addition to the generally known therapy, the favorable effects of oxygen-breathing are mentioned. Every 15 minutes a mixture of oxygen with 5 percent carbondioxide is inhaled during a period of five minutes.

A few articles deal with *mental hygiene* and *psychiatric social care* which in Holland developed after the American pattern, though on a much smaller scale. Bouman(8) answers the question as to why the population of the institutions for the insane almost doubled during the period 1903-1927. Better social care, education of the public, enlargement and improvement of the hospital facilities with resultant increased life expectancy of hospitalized patients, are the causes of this phenomenon. That city-dwelling and "degenerate families" (in the sense of Morel) have little to do with it is clearly brought out.

Placing the neurotic child in a foster home is not appropriate, according to Grewel(9) who discusses the basis for failure of this procedure. Elsewhere(10) he reviews the histories and motivations of 60 boys who came to the attention of the authorities because of sexual acts during puberty committed chiefly with other minors. In the urban boys as well as in those from the country he found that psychoneurosis and oligophrenia accounted for half of the incidents. However, whereas in the first group the two factors were equally represented, the relation was 3:14 in the second. Other findings also point to the necessity of studying causes in relation to the social groups.

Kat writes about the activity of the Amsterdam Medical Consultation Service for Alcoholism(11). Friendly fatherly contact, physical and psychiatric examination if indicated, social advice and small loans for constructive purposes are the services rendered. Social workers are on the staff. The number of consultations requested by various agencies, or by the individual himself, has increased continuously. Bouman organized this social service in 1909.

Schaeffer examined 300 normal children of the ages $4\frac{1}{2}$-$8\frac{1}{2}$ with the *psychomotor test of Oseretzky*(12). Their ages computed on the basis of psychomotor performance corresponded insufficiently with the real ages. For instance, tests requiring speed of execution lowered the psychomotor age considerably in all groups. In view of the fact that the test-age standards originally were developed for Russian children, Schaeffer applied slight modifications of certain psychomotor tasks to facilitate the computation of the psychomotor age of Dutch children. Interestingly, his research showed that, in the psychomotor testing up to the age of $8\frac{1}{2}$, no specific difference between the sexes can be noted, the girls on the whole scoring slightly higher than the boys. An absolute deficiency in speed of motion, however, was found in children suffering from *retardation of speech development*(13). These also display poor dynamic coordination, particularly of the hands. It is argued that speech, being the most subtle motor function, must be impaired if, often on an hereditary basis, the general psychomotor development is poor.

In other papers, Grewel(14, 15, 16) distinguishes between *language, speaking* and *voice*. He analyzes their development and pathology and attempts to reclassify the members of the heterogeneous group "disorders of speech." As a separate group are recognized "the peripheral impressive disorders of speaking," i.e., those which result from deficient acoustic control over the individual's own vocal production. The problem of aphasia is once more reviewed in its psychological aspect as well as with regard to cerebral localization. In the two main types, here named expressive and receptive,

generalized regression of all expressive ability is found.

Bouman discusses the relative position of the teaching of *psychology* at the Dutch universities(17). He points out that medical psychology has developed rather independently from what is known ordinarily as academic psychology. The latter as well as its specialized branches have to a large extent been nourished by the findings of (medical) psychopathology. In his opinion, the example of Yale University, a faculty for human relations where psychology can be taught in all its facets, is the ideal solution.

The optomotor nystagmus was extensively studied by Fortuyn and Van der Waals(18). They showed that when as a result of cerebral lesions, the o.m.n. to one side cannot be elicited by means of the rotating drum (with black and white stripes on the outside), this still can be accomplished by another method of examination. For this purpose they placed their patients within a chamber which could rotate around them. The chamber had black and white stripes painted on the inside. This finding was in harmony with the observation that animals in whom a part of a hemisphere had been resected did not lose the o.m.n. However in these animal experiments the same arrangement of optic stimulus had been used. The rotating chamber method led the authors to the conclusion that the elicitability of o.m.n. in cases of hemispheric lesions depends solely on the quantitative strength of the stimulus, i.e., the size of the rotating visual field. To some extent, the same had already been derived from the use of larger drums with wider stripés. Other interesting findings are the following: (1) Hemianopia does not extinguish the o.m.n. but causes it to be asymmetric (extramedian or deviated). (2) Loss of o.m.n. through pontine angle tumor persists when the patient is examined in the rotating chamber. (3) If upon turning in one direction the o.m.n. is abnormal or absent, the slow phase of the o.m.n. elicited by turning into the opposite direction shows abnormal jerking movements.

Grewel reported the case of a young punchdrunk boxer with neurological and character changes as seen in *traumatic encephalopathy*(19). He calls attention to the possibility that this condition, particularly in milder cases, is often not properly diagnosed. An encephalopathy resulting from chronic *manganese-intoxication*(20) was encountered in a browncoal laborer. This was the department's second case of this nature in which the metal could be detected in feces and urine.

A case of *pseudoxanthoma elasticum* combined with goiter(21) was observed by Kat and Prick. The disease was of a generalized type, and previously the diagnosis had been made on the basis of alterations of the skin and the presence of eyeground changes (angoid streaks). However, repeated biopsy of the thyroid gland revealed considerable changes of the principal branches of the thyroid arteries with complete destruction of the elastic fibers. It is suggested that the arterial degeneration might have been the cause of the colloid goiter. In a similar way other parenchymatous organs of sufferers from pseudoxanthoma elasticum may become affected though specific clinical symptoms do not need to result.

An extensive study by Van der Waals on narcissism requiring a review beyond the scope of this report, completes the volume of papers, most of them written in the Dutch language.

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WAR PSYCHIATRY IN RETROSPECT

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The recent crisis has been a challenge to review our concepts in many fields, not least in psychiatry. This article is not so much a presentation of factual material as a consideration in retrospect of some principles which are applicable in the practice of psychiatry in the Army. It is written from a personal rather than an official viewpoint but is presented at the suggestion of others who are interested in the application of these concepts to civil psychiatry.

Scope of the Field

The scope of the field of psychiatry is a puzzle to many psychiatrists and a mystery to the laity but in the Army it is rather clearly defined. In theory, official statements (not necessarily implemented by official attitude) indicate that the army psychiatrist is to interest himself in any behaviour which impairs the efficiency of the group or which reflects an unsatisfactory state of mind likely to impair efficiency. Actually this wide field is limited by various factors, but in practice almost every type of individual maladjustment comes under his observation. In addition to the individual cases which are recognized to be his rightful concern there are many for whom no one else can suggest satisfactory management or disposal who are sent to the psychiatrist as a last resort.

Military psychiatry differs somewhat from civil psychiatry in that the primary concern of the former is the efficiency of the group, and the feeling of well-being of the individual is chiefly of concern in so far as it serves the primary purpose. Because the scope of the individual's activities is more restricted, the standards less flexible, and the supervision more universal in the Army than in civil life, many individuals come before the psychiatrist who would otherwise escape professional observation. Since the Army is in a position to insure changes in an unsatisfactory situation the psychiatrist is in a position to have his recommendations followed provided he wins the cooperation of the powers that be.

General Attitude Toward Psychiatry

The general attitude in the Army toward psychiatry was initially determined by the prejudices of the members of the group toward civil psychiatry and to these were added the impressions made by army psychiatrists. On the one hand were officers who had been influenced by such unfortunate conceptions as "the irresistible impulse" and "crime is a sickness" and who felt that problems of behaviour were beyond their ken and were the field of the specialist only. On the other hand were the reactionaries who, because of the evident impracticability of such conceptions, felt that psychiatry was "bunk" except for its rôle in the care of hospitalized mental patients. In the background was the mass of soldiers with little interest in the subject except that a limited group looked on a psychiatric referral as the way out of an unpleasant situation. Army psychiatry itself sometimes increased misunderstanding by overoptimistic claims, occasionally by impractical recommendations and by misleading statistics.

It seemed to be the invariable experience of psychiatrists that the prestige of Army psychiatry was always increased when the specialist made himself and his functions widely known to the officers and medical officers of his formation, when he became thoroughly acquainted with their problems, and when he gave simple, straightforward assessments in non-technical terms and made practical recommendations. His most effective contribution was to enlist not only the interest but the participation of the laity.

Is It Illness?

Serious and responsible members of the laity do not feel competent to dabble in a field which is a mystery to them. Therefore it is important that the authorities (in this instance the psychiatrists) make clear to them in what part of the field their competence

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lies. Combatant officers and even medical officers frequently asked "What is a genuine case?" They inferred that the "genuine" case should be dealt with by the psychiatrist and that they themselves could deal with all others. To put it plainly, they wanted a clear distinction between "illness" for which the man was not responsible and malingering or wilful misbehaviour.

It seems that psychiatrists are pretty well agreed that there are few true malingerers in the Army. This raises the question what is meant by "malingering." Some of us have taken the attitude that before a man can be designated a malingerer it must be shown that he has consciously feigned a disability for the purpose of obtaining some benefit and that adequate medical investigation has shown that such disability is not present. The proof of malingering has sometimes depended on tricking the man into performing functions of which he claimed he was incapable, or of obtaining a statement from the man that he has consciously falsified his complaints. Because of the medico-legal aspects of the diagnosis "malingering" and because of the element of doubt in so many cases, cautious medical officers rarely make such a diagnosis. However, most medical officers can recount many cases they have encountered which they have unofficially designated as "lead swinging." "Lead swinging" seems to be a less malignant form than malingering. It is the tentative attempt to gain special consideration or relief from duty. Even a good soldier, of any rank, may on occasion appear on sick parade seeking to be excused from duty because of a minor complaint which is not incapacitating. In such a case this action is not usually an attempt to avoid responsibility so much as to have a change from routine. In action it is sometimes the soldier's attempt to gain a rest when he feels himself near the breaking point without actually having to admit that he is beginning to break. The M.O. who appreciates the situation and understands the man who thus presents himself, may find it advisable to accept the man's complaints at their face value and to grant him the suspension from duty which is indicated.

A different type is the chronic lead swinger of inferior morale who constantly seeks to evade duty and who is usually of a psychopathic or neurotic type. When his attempt to gain special consideration is rebuffed he carries on with his duties only to return to try again another day.

Frequent emphasis is necessary on the fact that there can be no clear-cut distinction between "genuine" and "non-genuine" cases. These terms are unfortunate from a medical point of view because they imply that the first type is in no way responsible for his disability because he is sick, whereas the second type is not sick or actually disabled but only shows an unsatisfactory attitude toward his duty.

There is a considerable number of men who show a varying degree of conscious exaggeration of symptoms on the basis of a minor disability. There is a still greater number who show no positive evidence of disability but who apparently make little effort to resist our common tendency to develop certain symptoms under stress. They have no sufficiently strong desire to maintain a well-integrated personality in the face of unwonted stress or danger. These may become ineffective due to a condition which is "genuine" that is, not malingering. Is it illness?

Between the healthy and the diseased is a group, of considerable size, of people who are neither sick nor well. This is particularly true in the psychiatric sense. Some of these seem to have a constitutional inferiority of physiological as well as psychological nature. In many, however, the mediocre level of effectiveness and tolerance to stress seems to be due to poor emotional habits and personal discipline. These men are below par, but are they any more sick in the psychological sense than the undeveloped book-worm with flabby muscles is in the physical sense? One has sometimes heard an obviously "high-strung" officer say of a man who cringed in his slit-trench or went AWL from action, "Well if he's neurotic so am I." In both cases the diagnosis was correct but in one case it led to apparent fearlessness in action and in the other to evasion of duty. Which man was ill?

The most useful concept in army psychiatry is one which should be very familiar to all psychiatrists but which has received insufficient emphasis, that is the concept of personality. It not only goes far to explain why men are as they are and to give a lead to lay authorities as to means of modifying

behaviour but it also serves to save the faces of psychiatrists when the results of treatment are not all that is expected. When it is clearly understood that the personality of the individual is determined not only by his constitutional endowment but also by life-long habits of attack or retreat, of motivation and of persistence, and that all this is modified by his state of mind or morale, many problems are clarified. This concept is readily grasped by the laity and an appreciation of it and its implications is of assistance to intelligent management whether by officers and N.C.Os. or by employers and superintendents.

Application of the Personality Concept

(a) *Selection.*—Army psychiatry has been frequently criticised for the results of psychiatric selection. An apology may be made on the ground that there was no authoritative opinion on the personality of the satisfactory soldier, that induction histories were unreliable, that too many imponderables were involved, and that the manpower situation was such that the acceptance of what we conceived to be marginal types was necessary. It has become clear that not all men with negative histories of neuropathy or psychopathy were good soldiers and that not all with positive histories were poor soldiers. It has also become clear that a category is not a fixed value but that it varies with the man's performance under varying stresses in civil life, in training and in action. Many men who were admitted, with good reason, as fit in the psychiatric sense have subsequently been downgraded on psychiatric grounds though no essential change has taken place in them. The screening becomes progressively more accurate as men proceed from induction, through training to action. Conceivably our induction screening would be improved if we could know whether a man habitually attacks or retreats from his problems, what type of motives drive him, what sort of sense of responsibility he has and whether he has shown persistence in his activities. Little need be said of the "I.Q.-conscious" state of mind of many people engaged in selection. It is obvious that no single test or battery of tests whether of I.Q. or of personality can give the answer as to whether a man will make a satisfactory soldier. Our decision regarding his suitability should be determined by the resultant sum of his assets and liabilities as shown in his adjustment to common situations.

In the selection of officers it would appear that insufficient stress has been laid on the emotional resources of the individual. Leadership has been eclipsed by technical ability. One fact should always be kept in the foreground—the prime requisites of an officer are to manage himself and to influence his men.

(b) *Training (Induction and Incorporation).*—One school of thought seems to hold that if selection were accurate there would be no psychiatric problem in the Army; all the grossly unstable would be excluded and the remainder would be suitably allocated to jobs at which they would function efficiently. This seems to involve a static rather than a dynamic conception of human adjustment.

Selection at induction has weeded out an astounding number of civilians who are considered more or less permanently unfit to be soldiers for psychological reasons. Presumably those who pass the screen are at least potentially fit. However, many of these men later are seen by a psychiatrist because they obviously have not adopted the philosophy of life and the viewpoint necessary to make them good soldiers.

Training is aimed at building up physical stamina, coordination, technical ability and reflex obedience. The authorities have also recognized the importance of motivation and have written pamphlets and arranged courses on the psychological and educational aspects of training. However, these measures do not appear to have had the desired effect. This is largely because there has been no real indoctrination.

We have perhaps failed to realize the degree to which young recruits have been predisposed to breakdown by the philosophy of life which has been current since the last war. Our civilian ideals have been such as to emphasize personal safety, comfort and privilege and to neglect personal responsibility. Such a background is not conducive to the development of reliable fighting men and it is certain that lifelong habits of thought and action will not be altered by a few discussions conducted in a dilatory manner.

Only a passing reference may be made to some crude methods advocated for the purpose of "hardening" men to battle. I have not yet seen the soldier who felt that swashbuckling speeches, lectures on hate or visits to slaughter houses during training had made the subsequent adjustment to battle any easier. These methods, fortunately not in general use, were rather looked upon by the soldier as a form of indignity. They had no relation to the actual battle situation. In this connection it may be pointed out that the complaint which is commonly heard that the army has made young men "killers" and thereby has unfitted them for civilian life represents a fundamental misconception both of army training and of the thinking of the average good soldier. The ardent hater and blood-luster is not only relatively rare but is usually an unstable type in the first place. The best type of soldier may or may not like a scrap but in either case he dislikes brutality and has a considerable sense of responsibility. In battle he pursues a course of action which is adapted to the battle situation. This situation has no counterpart in civilian life and its emotional content cannot be reproduced in training for the simple reason that the soldier knows it is training and not a life or death situation. This is not to discount such methods as "battle inoculation" which are of value in favourably conditioning the soldier to discomfort, noise and unfamiliar situations.

The factors which help to make a man a soldier morally are his sense of personal value and responsibility and the time honoured sentiments of pride in his regiment, corps and army, and of respect for his leaders. From the day he is inducted the process of incorporating him, as a person, into the fighting forces must begin. Whatever one thinks of the thesis that mediocre men can be made effective by good leadership the fact remains that the fewest behaviour problems arise in well-led regiments and the greatest number arise in large heterogeneous unassimilated groups where men have no recognition, no ties and no leadership.

These facts are as well known to the laity as to the psychiatrist and he may feel that he is laying aside some of his professional dignity by insisting on them. However the contribution of the formation psychiatrist may be as great in assuring combatant officers that the science of psychiatry has not outmoded the art of leadership, as in "selecting out" the men who have not yet been molded into soldiers.

The incidence of maladjustment will be greatly reduced and the management of maladjusted individuals greatly improved by the inculcation of sound and practical principles of management in the course of training of N.C.Os., officers and medical officers. A group of well trained Regimental Medical Officers interested in psychiatry and personality adjustment are of more use to a formation than any number of supernumerary psychiatrists.

(c) *Management.*—The preventive side, the promotion of good mental health in the Army, is the hope of successful army psychiatry. The cooperation of the leaders (combatant officers and R.M.Os.) is essential. Their cooperation is assured if they understand how mental health is related to efficiency, if they see the program is common sense and practical and if they feel competent and are encouraged to participate in it, or better, to organize it themselves. These considerations have their correlate in civil life.

In early treatment the laity must also play the predominant rôle. It is a principle that the farther forward treatment is carried out the better. Effective management by an N.C.O. frequently resolves a "neurosis" before it starts. One example of this was the experience of a British sergeant who sent a man from his reconnaissance patrol to investigate a house. On pushing the door open the man came on a body pinned upright to the wall by a bayonet. The man, not a rugged personality, returned to his sergeant gibbering and unable to give any information as to what he had seen. The sergeant, requiring essential information, by persuasion finally forced the man to talk sensibly and to give him all the details. Then he took the man forward with him to finish the investigation. The man continued with the patrol, carried out his duties, showed no further symptoms and was still with his unit some weeks later. In civil practise one has seen disorders which might have similarly been arrested by a tactful and forceful attitude on the part of an employer or supervisor.

Treatment of Breakdown Under Stress

Under this heading we are not considering the treatment of psychoses or of the extreme forms of psychoneurosis but of the other 80% or more of emotional disorders seen by the forward area psychiatrists.

The treatment obviously depends on one's conception of the disorder. If one conceives the disorder as due to deep-seated conflicts which require resolution, special, rather complex, techniques will be employed. If it is viewed as a simple reaction of the individual to the immediate situation, perhaps when his tolerance to stress has already been lowered by extraneous factors, a simpler type of restorative therapy is indicated. In 2nd Canadian Corps our choice of therapy in the early phases of fighting following the Normandy Invasion was limited by the practical impossibility of using complicated or time-consuming methods. Narcoanalysis was sometimes used as a short cut in therapy in selected cases but never on a large scale. During a later phase when we had more opportunity to vary the treatment we decided to adhere to the simpler methods. This decision was based on considerations which are outlined below.

In the Allied Armies in Africa, Italy and North West Europe, both of these methods were used. From reports which have been published to date it is difficult to assess comparative results for reasons that will be indicated below. However, during twelve months' experience in a forward area the writer gathered the impression that the beneficial results of both methods were due largely to their common factors—removal to a place of relative security, provision of rest and good food, and a constructive rehabilitation program. The rehabilitation program in some instances was a specially organized program in a treatment unit or a convalescent depot. However, it appeared that equal success could be achieved by temporary employment at non-combatant duties if attention were given to measures to restore morale. No matter what form of treatment was used the therapist eventually had to resign himself to the fact that considerably less than half of the men he treated would subsequently prove efficient as front line soldiers. Most of the remainder, however, could be allocated to other duties.

One reason for the failure to return a large proportion of men to the front line was that even in their pre-casualty state many were vulnerable personalities. It was our opinion that the vulnerability was largely due to the habit patterns and learned reactions which had been acquired over a period of years. To correct this condition a long process of retraining and reconditioning would be necessary and this was not practicable. One might expect that if the vulnerability and eventual breakdown were due to deep-seated conflicts which could be resolved, presumably narcoanalysis, narcosynthesis [2] and other special techniques should enable the man to face reality, to adjust to his situation and to be a better soldier than he had ever been. Our choice of treatment precluded relevant observations on this hypothesis. However, one prominent advocate of narcosynthesis has tacitly admitted that this method was successful if and when a man was told that he would not return to the front-line. In this respect the results of this type of therapy were no different than the results of other methods.

"Abreaction" became almost a catchword and was often spoken of as the desirable climax of therapy. Abreaction of a superficial sort occurred spontaneously. One has seen a whole ward of anxious patients, just out of battle and untreated, recounting grim experiences in an intensely emotional way. Not only was this practice contagious but rather than being beneficial it showed a quality which suggested that the result would be fixation of symptoms. If our judgment in this matter was correct, then we must conclude that in many cases emotional retelling of experiences was harmful. Conversely, there is reason to believe that suppression of distressing memories was sometimes helpful. Many soldiers who went through the campaign and who were near breakdown at times but were never evacuated attributed their ability to survive distressing experiences to the fact that "I just forgot about it" or

[2] Narcoanalysis and narcosynthesis seem to be simply different terms for the same method of treatment, although the latter is more recent and probably is meant to convey that the emphasis is placed on the re-integration process which should follow the abreaction.

"I tried to forget about it." Many others modified distressing memories by giving them a humourous turn.

It may be objected that the foregoing indicates a very superficial view of psychodynamics and the significance of symptoms. From the practical point of view it can be stated that whether "deep" or "superficial" methods were used the most that was achieved by short-term treatment was the removal of symptoms. The basic personality remained the same. The chief advantage of the special techniques was that they sometimes provided a therapeutic short-cut. Their value was sometimes dramatically demonstrated in a limited group of cases (often highly suggestible types); but on the whole our preference was for a simpler restorative type of therapy, both physical and psychological. The great problem was either the restoration of confidence in a previously good soldier or the build-up of healthier motivation in a previously mediocre soldier. This takes us out of a specifically medical field into the broad field of human relationships and adaptation.

Finally it was essential that the soldier begin to treat himself. In the Army as in civil practice the psychiatrist has not completed his job until he has taught the patient autotherapy.

Breakdown in Well-Adjusted Personalities

In case the foregoing has left the impression that all psychiatric casualties are considered to be due to character defects it may be stated here that this is only true insofar as we may consider that no individual possesses the qualities of constitution, character and morale to stand up to unlimited stress. At times one has wondered whether it is reasonable to expect the human personality to endure the rigors of modern war. However, many men have shown their ability to do so. On the other hand, men who have shown good adjustment throughout civil and military life, and who were without apparent personality defect, have broken down under overwhelming stress or have been gradually worn down by a long campaign. Although in some of these cases the breakdown appeared to be due to a catastrophic disorganization of the personality, it could usually be simply interpreted as a profound loss of morale. The problem in these cases again was one of restoration of confidence. In the truly battle-weary old campaigner the possibility of complete restoration was remote.

Statistics

The only reason for including any comment on statistics in this paper is the author's impression that the effect of published statistics has been to throw the psychiatric situation in the Army out of perspective. The lack of candour displayed in some claims of therapeutic results is equalled only by that shown by civilian enthusiasts for insulin-shock and endocrine treatment of psychoses. Some therapists have omitted to state that on occasion they returned 98% of cases to their units because there was no means of evacuating them. Others have failed to admit that "return to duty" covered a very wide range of disposal. Odious comparisons have sometimes been made by the laity of the psychiatric state of various formations based on misleading statistics published by psychiatrists themselves. Facts which the figures frequently fail to show are (a) the number of men successfully dealt with by regimental officers without recourse to a psychiatrist or without evacuation; (b) the policy of the formation as regards evacuation; (c) the kind of duty to which "cured" patients are returned; (d) the number of such patients who actually arrive at the destination to which they have been sent; and (e) the kind of service which these men render after they have been returned.

Conclusion

The principal points emphasized in the foregoing discussion are as follows:

1. In assessing and dealing with psychiatric problems at induction, in training and in action the army psychiatrist deals fundamentally with behaviour patterns which have been built up over a long period and which he can do little to change in a short time. This is less true in action where acute breakdown occurs causing apparently sudden changes in the behaviour patterns of previously well adjusted individuals or where pro-

longed stress causes a gradual decline in efficiency of adjustment.

2. The symptoms in a large percentage of psychiatric casualties are superficial and for the most part are readily removed by simple methods of treatment. Though superficial they require satisfactory resolution to prevent fixation and persistent disability.

3. The techniques of individual treatment necessarily vary with the individual's requirements. The aim is to help the man to understand himself and to help him do something about it. Some men need the opportunity to relive traumatic experiences as in "abreaction." However, in many cases it is the general adjustment and not the traumatic experience which needs to be "talked out." Removal of symptoms is desirable if not essential but the crucial point is the man's deliberate and determined choice of a course of action.

4. The disposal and the final outcome are largely dependent on the personality make-up which we have expressed in terms of constitution and character, and on personal morale.

5. Character may be modified by prolonged retraining but the most hopeful approach to either preventive or therapeutic psychiatry in the Army is in the direction of improving personal morale by efforts in the individual case to build up confidence and to give guidance in self-management, and by general morale measures which are the responsibility of the command rather than of the medical officer.

6. The greatest hope of success in reducing psychiatric casualties lies in attention to preventive aspects and in the institution of early treatment as far forward as possible. For this reason it is important that officers and N.C.Os. receive thorough indoctrination in the principles of mental health which are applicable and that medical officers receive adequate instruction in the fundamentals of personality adjustment, psychogenic disorders and psychosomatic medicine. If such principles are clearly understood much of the responsibility for management and treatment can be left to those who are constantly in contact with the men.

REVIEW OF PSYCHIATRIC PROGRESS 1945

GENERAL CLINICAL PSYCHIATRY, PSYCHOSOMATIC MEDICINE AND PSYCHOSURGERY

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Last year's report pointed out that psychiatric research was reduced due to the war. This trend continued in the year 1945. Nevertheless, a large number of reports are available indicating diverse research activities in all fields of psychiatry. From the many outstanding papers, we picked out a few that we believe have a general interest.

In the realm of clinical psychiatry, Stengel's article throws light on the interplay between obsessional symptoms and psychotic reactions. He demonstrated that depressive states occurring in obsessional patients show atypical features which can be attributed to the modifying influence of the obsessional mechanisms. The author substantiated the comparatively old observation that aggressive, destructive ideas are prevalent in depressive states occurring in obsessional patients. A higher incidence of suicide is found in this type of case. In patients of the schizophrenic type, Stengel shows that the psychosis often resulted in a release of primitive impulses which had previously been kept under control with the aid of obsessional symptoms. Regressive conduct was not as common in obsessive schizophrenia as otherwise. The obsessional type of schizophrenic remains well preserved as a person and shows little tendency to deterioration. He expresses the opinion that the obsessive personality structure is capable of subduing abortive schizophrenic reactions. It was also stated by Stengel that the excess inclination of obsessional neurotics to reality proving and doubt affect their attitude to psychotic experiences in a favorable way. Better understanding of the obsessional mechanisms in the psychoses is of importance if we want to improve our therapeutic efficiency which is none too high in the obsessional neurotics and much less in obsessional psychotics. Obsessional schizophrenics are especially refractory to treatment even though as Stengel rightly pointed out, it insulates them from deterioration.

Stockings discusses the diagnoses and treatment of psychotic episodes of patients he encountered in military service. Some of these psychotic episodes are not always clearly understood. The main difficulty lies in the differentiation of acute confusional forms of which some belong in the realm of hysterical states. Others, however, are schizophrenias. The presence of headache; the absence of hallucinations, mannerisms, incontinence and regression symptoms are indicative of a hysterical confusional state. Stockings believes that the good response to narcoanalysis also points to this direction. Mental defectives with psychotic features are difficult to differentiate from schizophrenia. The same is true of some psychopaths who go into a psychotic episode. Quite a number of patients were diagnosed as paranoid form of schizophrenia because they claimed that their superiors were picking on them. Because these persons did not display true delusions and had no hallucinations, according to Stockings, they may be more properly regarded as cases of a so-called "justice" neurosis. His schizophrenic material he divided into two groups; those who showed depression of mood and underactivity and patients who were over-elated or showed a manic excitement. The first group he treated with electroshock applied daily. In the second group, he gave insulin in coma doses. Seventy percent of those psychotic states showed complete remission, 15% were improved and 15% failures. Follow up studies of these cases would be of great interest, especially in the schizophrenic group, to see if the schizophrenias which were precipitated under special stress have a better prognosis than those which developed more endogenously.

In the field of therapy, the shock treatments still absorb a great amount of interest, especially electric shock therapy which, due to its comparatively safe and easy application, is more widely used than any other

form of treatment. Alexander suggests a more accurate method of evaluating electroshock therapy. He believes that the prevalent method for classifying the results is not adequate. He found that if the patient was examined 30 days after termination of the treatment, a much better appraisal of the therapeutic efficacy was obtained than otherwise. Immediately upon finishing the treatment, 84% of the involutional psychoses, 93% of the manic-depressive psychoses, and 83% of the schizophrenics showed social recovery. Thirty days after discontinuation of the treatment, the involutional psychoses showed 41%, the manic-depressive psychoses 47%, and the schizophrenic psychoses 63% social remission. His work confirms observations of others that most of the relapses after electroshock treatment occur shortly after the discontinuation of the treatment. It is interesting to note the high relapse rate in the involutional psychoses and manic-depressive cases in Alexander's statistics. In the statistics of other therapists the highest relapse rate is confined to the schizophrenic group. Kalinowsky pointed out that organic psychotic episodes are not rare in the course of electro-convulsive therapy and considers the appearance of new forms of psychotic symptoms in patients under treatment indicative of an organic reaction. The correct interpretation of this organic syndrome is of great importance for proper planning of electro-convulsive therapy. Sometimes the treatment is unnecessarily continued because of symptoms which are no longer an expression of the original disease, or prematurely interrupted because transient organic episodes are taken as an aggravation of the patient's illness. Some of these complications clearly indicate that the operator must have a good knowledge of psychiatry and be versed in shock treatment technique. The application of electroshock is not exactly a push button form of therapy as some psychiatrists seem to look upon it.

Darling presents 2 interesting cases of psychopathic personality treated with electroshock. The first case showed depression and psychopathic traits; the psychopathic trends disappeared after treatment but the depression recurred later on. The second patient was also relieved of his psychopathic trends. Both these cases are probably atypical psychopaths; the first showing depression, the second schizophrenia-like symptoms. It is not possible to draw conclusions about the efficacy of electroshock treatment in psychopaths; too few cases have been treated and the results are not encouraging.

Group therapy was used extensively in the armed forces. Rome thinks that it should be used in a military setup since military psychiatry, because of its nature, is forced to deal with the similarities of individuals and not with their differences. It concerns itself completely with the purely social aspects and adjustment of behavior. He believes that many patients can be restored to efficiency by superficial therapy and do not need "deep" techniques. Group therapy concerns itself much more with the present than with the elucidation of the past. Basically, military group psychotherapy is education for social existence. Recreational and occupational therapy has to be harmonized with this purpose in mind. Rome advocates group therapy also for rehabilitation to remove personal anxieties and to induce an orderly social attitude.

Schwartz, who used group psychotherapy on naval personnel, believes that etiological factors like personal deprivations, economic changes, new forms of discipline, restrictions and moral factors lend themselves particularly to the influence of group therapy.

In connection with the drug conducted psychotherapies, Kubie and Margolin point out that the processes of repression, dissociation and synthesis which figure in the therapy of the neuroses, apply equally to the patient under drugs. Drugs facilitate recovery by rendering the personality less vulnerable to exposure of material which in the waking state may be intolerable. For the same reason synthesis (interpretation) may be accepted and integrated without catastrophic disturbances. These factors permit the use of drugs in dynamic psychotherapy to circumvent resistance.

In connection with the use of drugs, the conditioned aversion treatment in alcoholism should be mentioned. Edlin, Johnson, Hletko and Heilbrunn found that in an unselected group of patients 15% remained abstinent

for 5 to 15 months. The abstinence rate rose, however, to 53% in a selected group of patients with a good sociological background. These figures are far below the figures given by Lemere, *et al.*, who found favorable results in 75% of the patients. The aversion treatment is regarded not as a therapy in itself, but merely as a valuable method to interrupt the alcoholic cycle for a period of time. It should be utilized for intensive psychotherapy.

A number of interesting papers appeared in the field of psychosomatic medicine. Of general interest are the findings of Rowntree who writes:

> Psychosomatic medicine is in the limelight at present. However, the pictures of personality are still indistinct and the part played by psychic factors lacks definition. We need additional insight in the qualitative and quantitative influences of emotions on the individual as a whole and on his nervous system and vascular system, on his systems of organization, on physiologic activities and chemical reactions.

In the statistics he published, it is interesting to see that the incidence and rejection rate for asthma nearly doubled and peptic ulcer increased nearly 50%, for Negroes to 2½ times that of the peace-time rejections. Neurocirculatory asthenia more than doubled and in Negroes it was 5 times as frequent as reported the year before. He indicates that re-examination of the material is important because of the false conclusions which can be drawn. For instance cardiologists re-examined 5,000 rejections and found that the contention that functional heart disease greatly increased and that organic heart disease is infrequent among rejectees is incorrect; that 50% of the cardiac rejection is based on rheumatic heart disease or valvular lesions. It is rather of interest to hear that neurocirculatory asthenia and effort syndrome are now considered by the cardiologists as psychoneurotic in origin as it was maintained by psychiatrists since World War I.

Mittelmann, Weider, Brodman, Wechsler and Wolff interviewed 450 admissions on medical and surgical wards from a psychiatric point of view; 20% of the patients examined had a mild, 10% a severe neurosis. They found that the pre-existing personality problems became aggravated by infection or trauma in about 30% of the cases. Personality disturbances precipitated in association with infection or trauma was present in 33% of the patients examined. They conclude that the patient's difficulties arise with the threat to bodily safety, frustration of defense needs, hostility, sexual problems and failure to live up to high standards of achievement. All patients showed conflicts between group ideals and desire for protection. In psychopathic individuals, feelings of frustration and guilt expressed themselves in diffuse hostility and defiance of accepted social ideas.

Alexandra Adler found that pre-traumatic factors have a high incidence in post-traumatic mental symptoms. Especially the long duration of headache and dizziness was associated with the high incidence of mental symptoms. Environmental complications, occupational difficulties in particular, and problems of litigation and compensation were correlated with the high incidence of post-traumatic mental symptoms. Most of the clinical pictures seen were of an anxiety neurosis.

Kelman in an article on "Character and the Traumatic Syndrome" points out the magnitude of this problem. The number of people who suffer a trauma annually is about 800,000 in the U. S. If mental trauma were included, this figure would be very much higher. Kelman believes that to understand the traumatic syndrome, it is important to understand the reactions on the part of the individual who feels that he is failing, or has failed, to live up to his idealized image. The author feels that the problem of the pre-traumatic personality can best be approached through a study of character structure. The traumatic syndrome is a state of personality decompensation. The persons who suffer from a traumatic neurosis feel vindicated in their own eyes for their defiance, stubbornness and vindictiveness because they feel the world, the persons around them, life in general, or the therapist humiliated them. Kelman believes that the basic factor is the feeling of failure to obtain or maintain his idealized image of himself. He had good results with the form of treatment described by Horney as character analysis.

Ruesch and Bowman believe that in late

post-traumatic conditions, the importance or organic damage to the brain has been widely overrated. Post-traumatic personality is the determining factor for delayed or postponed recovery following head injury. Maladjustments, conflicts and dissatisfactions seem to be associated with prolonged convalescence. Abnormal states of mind associated with uncontrollable excitement, hatred, fear, guilt or other emotions, predispose to accidents. Attention should be directed to investigation of the state of mind prior to the accident. Pre-traumatic difficulties of adjustment should be evaluated.

Frontal lobotomy is used in certain instances in mental disorders. Still not enough statistics are available to be able to assess the value of this procedure which in some persons seemingly produces good results. In others, however, the expectations of cure were not fulfilled. Freeman and Watts arrived at the conclusion that frontal lobotomy is less successful in schizophrenics than in patients who have preserved a better contact with reality. Nevertheless, the operation offers certain hope for patients suffering from this disease. Many chronic patients cannot be discharged from the hospital, but their care is greatly simplified because of their new objective outlook in life and pleasure in living. They found that prefrontal lobotomy bleaches the effect attached to the ego and turns the patient's interest away from himself toward the outside world. They consider prefrontal lobotomy as a procedure of last resort. This does not mean, however, that it should be delayed until emotional deterioration is well advanced. From 50 schizophrenics observed over a period of 2 to 7 years following prefrontal lobotomy, 32% were employed, 8% were keeping house, 33% were home and 18% were in institutions.

Kindewall and Cleveland applied lobotomy in 15 cases who had a wide variety of symptoms and were considered having a hopeless prognosis. They found good improvement in 7 patients. They believe that patients with different diagnosis would benefit by lobotomy provided that anxiety is the dominant symptom.

Yarcarzynski and Davis compared 5 patients with unilateral lesions of the frontal lobes with 8 normal controls of approximately the same age range and educational status. They found that the subject with frontal lobe lesions required a longer time and more illumination to perceive geometrical figures and words than the controls. They were unable to perceive as many meaningful objects and ambiguous figures and unable to recall as many objects seen as compared to the controls. The ability to shift from one stimulus to another was also impaired. Immediate memory, as far as they could see, was not affected. The Authors suggest that associations, if uncomplicated by perceptual processes, are not primarily a function of the frontal lobes.

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PHYSIOLOGICAL TREATMENT OF PSYCHOSES

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Several hundred new papers on physiological aspects of psychiatry have appeared during the past year, many of them in foreign journals which are not yet available. The gap between the last review in this Journal (in January 1944) and the present review is filled by a belated article of mine which covers the literature for 1944(1). A sympathetic critical review of the field was recently written by Lewis(2). The compendium on somatic treatments by Sargant and Slater(3) has been republished in this country. De Jong(4) has assembled all his work in experimental catatonia in an important monograph, his first since the appearance of his book on bulbocapnine catatonia in 1930. Holengren and Wohlfahrt(5) have brought out a comprehensive review of sugar metabolism studies in psychotic subjects, with much new material. Landquist's(6) elaborate study of the prognosis and course of manic-depressive psychoses provides valuable control data for estimating the value of some of the new treatments.

Adrenalin and Acetylcholine

Research in physiological treatment is often hampered by misunderstanding or prejudice regarding the rôle of physiology in psychiatric problems. Old, outworn notions of the separation or opposition of the body and mind still show themselves from time to time in our psychiatric thinking. Novikoff's(7) splendid discussion of integrative levels should serve to clarify our basic principles, and is warmly recommended to all psychiatrists. Psychogenic anxiety, for example, may effect deep levels of physiological integration, where events may take place which in turn help to perpetuate the psychological symptoms. Cameron(8) correctly estimating the therapeutic possibilities involved in these inter-relationships, has made an attempt to tackle certain forms of persisting anxiety with injections of adrenalin to produce "desensitization." In spite of his encouraging results he correctly insists that this in no way implies that the initial disturbance was at the physiological level.

There are however no simple inter-relationships in physiology. Benzedrine, which is chemically and pharmacologically allied to adrenalin, can induce psychoses. Norman and Shea(9) describe another case of a typical schizophrenic paranoid picture developing in an individual who abandoned alcohol by becoming a benzedrine addict, gradually increasing his daily dose to 250 mg. a day over a period of 5 years. Symptoms subsided promptly on withdrawal, with recovery in 30 days. I have seen several cases myself in recent years, invariably with a paranoid picture. In this connection it may be noted that Allen and Brostar(10) report a further case of paranoid psychosis successfully treated by adrenalectomy.

Gantt and his associates(11) have studied the effect of benzedrine on higher nervous activity with Pavlovian techniques. Burn (12) has presented considerable evidence to show that adrenalin in small amounts promotes the acetylcholine effect in the nervous system, but in larger amounts diminishes it.

De Jong(4) induced experimental catatonia with both adrenalin and acetylcholine. In an important paper, Schütz(13) demonstrated a pronounced decrease of serum cholinesterase during prolonged barbiturate administration, with a time-lag before return to normal levels after barbiturate withdrawal. He believes that psychotic symptoms as well as increased susceptibility to fits may both be related to this time-lag after withdrawal, during which excessive cholinergic activity can develop. Considerable work(14) has recently been done by various authors on factors affecting acetylcholine synthesis.

Results of Insulin and Electroshock Treatment

Gralnick(15) confirms the finding of other authors that after successful insulin treatment there is a definite likelihood of relapse with the passage of years. If treatment is begun early enough, however, remissions take place more quickly, are of better quality, and are more stable. The parole rate for patients ill up to six months—with very exacting standards for parole—has been 60.4%. Those that have remained well through the years have been predominantly (66%) cases that were treated within their first year of illness. Unfortunately there is no mention in the report of any attempt at repeated courses of treatment for relapsed cases. Weil and Moriarty(16) report a series of cases that responded well to insulin after unsuccessful electric treatment. Stall (17), on the other hand, reports that insulin resistance can sometimes be overcome by inducing a few convulsions. If electroshock treatment is used in schizophrenia, the consensus of opinion is that treatment must be prolonged and intensive, with at least 16 to 20 treatments(18). Tietz(19) and her associates think electronarcosis is as effective as insulin.

Electroshock treatment appears to be equally efficacious for all types of affective psychoses: manic states, depressive episodes or involutional depression(20). Treatment shortens the duration of the psychosis and hence diminishes the chances of death from suicide or exhaustion, but does not otherwise change the statistical chance of recovery or liability to recurrence. The age of the patient and the adequacy or intensity of treatment seem to be the main factors affecting the results. In schizophrenia(21) acute and florid symptoms offer the best prognosis. Kerman(22) in an important study, recommends that patients who relapse after each of two successive courses of treatment be kept on a maintenance ambulatory treatment regimen of one or two treatments a week. In a series of such cases—mostly schizophrenic—the author could maitain significant improvement at the cost of a relatively mild amnestic syndrome. Heldt and Dallis(23) recommend electric treatment for refractory cases of general paresis that have not responded to fever or chemotherapy. Electrically induced convulsions can also be usefully employed to diminish and regularize the occurrence of seizures in epileptics(24).

The Safety of Electroshock Treatment

There is no conclusive evidence of significant brain damage from a short course of electroshock treatment(25). In treating depressions Savitsky and Tarachow(26) found that five or less treatments are often sufficient. It should be noted however that these authors use double-shocks of 110 or more volts with durations of 0.1 to 0.25 sec. An additional safety factor may be found in following Liberson's(24) recommendation of increasing the frequency of the alternating current cycle to 120-150 per second. At this rate voltages of less than 50 are adequate, with consequent reduction of the chances of brain damage.

Several large statistical reports have come out showing a remarkable safety factor in treatment(28). A few unusual fatalities have been reported(29). Older patients and patients with serious cardiovascular disease have shown an amazing capacity to tolerate the treatments well: the papers of both Evans (30) and of Mayer-Gross(31) should be read for encouraging reports on over 100 such cases. For a number of clinical tips on management of treatment(32), and for reports on miscellaneous physiological observations in insulin and electric treatment(33) the reader is referred to items in the bibliography. Several descriptions of

shock apparatus of new design have also appeared(34).

Miscellaneous

A number of authors continue to report good results with prefrontal lobotomy in chronic and otherwise hopeless cases of schizophrenia(34). Hofstatter(35) and his associates claim successful results in half their cases of chronic paranoid states, where other forms of treatment are almost always unavailing. Freeman and Watts(36) recommend it as a procedure of last resort, but think it should be undertaken before advanced deterioration has been allowed to develop. According to Freyhan(37), dilantin appears to be helpful in allaying certain types of psychomotor excitement. McIntosh(38) recommends thiouracil in psychoses associated with hyperthyroidism.

Meduna(39) and his associates confirm and elaborate their earlier work on the impaired glucose tolerance and diminished insulin sensitivity in schizophrenia. De Jong and St. John(40) found that nearly half of their 32 catatonic subjects had an abnormal protein metabolite in their blood serum, possibly related to disturbances in liver function. Lowenstein(41) repeats his earlier claims of a strikingly high incidence (40%) of tubercle bacilli in the spinal fluid of schizophrenic subjects.

Fleiss(42) calls attention to the relative frequency of subdural hematomata in certain psychotic pictures, not necessarily associated with neurological signs. Keys(43) and his associates in a carefully controlled experiment found that vitamin B deficient diets induced a marked tendency to apathy or depression, hypochondriasis and hysterical reactions, with prompt reversibility of the symptoms upon return to normal diet.

Freed(44) claims good results in the treatment of premenstrual tension with methyl testosterone, 10 mg. daily by mouth for a week or 10 days before onset of menses. He believes that its value is related to its antagonism to estrogen, the secretion of which is increased during that period. Earlier work has emphasized the sodium retention induced by estrogen and sought to relieve it with ammonium chloride. Klein and Nunn(45) in a valuable detailed study of a case of cyclic psychosis, demonstrated a marked retention of both water and salt during the depressed phase, with release during the manic periods. These changes preceded the clinical changes and did not exactly parallel them. Miller(46) believes he induced relief of tension and insomnia in a series of cases by restricting their salt intake.

Cameron(47) presents convincing arguments for the inclusion of psychiatric departments in general hospitals. His description of his own psychiatric service in the Royal Victoria Hospital in Montreal, with its close contact with medicine, its orientation to the community and to industry, its use of modern objective and experimental techniques, and its emphasis on research, marked it as a pioneering progressive type of psychiatric service.

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ALCOHOL. GERIATRICS

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Alcohol

During the last year a number of state commissions have been appointed or have reported, and a number of laws have been either passed or have been under consideration.

New Jersey has created the New Jersey Commission for the Rehabilitation of Alcoholics and Promotion of Temperance, which has recommended that there be a survey of available facilities for the treatment of alcoholics and that an information and referral center be established; that a clinic should be provided for inebriety treatment; and that a plan for working with the courts and paroling suitable cases be carried out. The commission has been given $25,000 for its first year of work.

The State of New Hampshire, by joint resolution, has created a commission to survey the laws and regulations relative to the sale and use of alcoholic beverages. It is expected that the commission will make a particular study of the methods for the treatment and rehabilitation of known alcoholics.

The Special Commission to Study the Problems of Drunkenness in Massachusetts, appointed in 1943, issued its report on March 7, 1945. This commission recommended the establishment of a hospital for suitable cases of alcoholism and certain provisions for preventing those with more than one arrest for drunkenness being released. It favored the adoption of a personal license system for the purchase of alcoholic beverages, following the Swedish plan. The use of a special label on all bottles of liquor is proposed, the label to read as follows:

Directions for Use.—Use moderately and not on successive days. Eat well while drinking and, if necessary, supplement food by vitamin tablets while drinking. Warning: If this beverage is indulged in consistently and immoderately it may cause intoxication (drunkenness), later neuralgia and paralysis (neuritis), and serious mental derangement, such as delirium tremens and other curable and incurable mental diseases, as well as kidney and liver damage.

In an editorial in the *Quarterly Journal of Studies on Alcohol* for June 1945, it is held that the use of such a label is undesirable and will be of no value. The editorial points out that "vitamin-free calories are not unique to alcohol, and similar warning labels could as logically be put on other beverages equally deficient nutritionally, such as the

sweetened carbonated soft drinks." Various other criticisms are directed at the label and the editorial concludes that it is doubtful whether the label will accomplish anything constructive and that it may even have certain harmful effects.

A most important step forward is the new Connecticut law entitled, "Public Act No. 406—An act providing for the study, treatment, and care of inebriates." This law appears to be very carefully drawn. It represents an honest attempt to deal with the problem of alcoholism. It assumes that alcoholism is a disease and that treatment and prevention may be possible. It sets up a board to study this problem and provides that 9 per cent of all monies received by the Liquor Control Board as fees for permits shall be paid into the Inebriate Fund and that this fund may be used by the board for the study of the problem and for the examination and treatment for alcoholics.

Edward G. Baird, Jur. Sc. D., prepared an excellent summary entitled "Science and the Legal Responsibility of the Drunkard" (*Quart. J. Studies on Alc.*, March 1945).

A number of articles have appeared on the conditioned-reflex treatment. It seems to be generally agreed that the conditioned reflex alone is not adequate to rehabilitate alcoholics but in selected cases it is an important part of the whole treatment, which must include psychotherapy and the altering of environmental factors.

In an article entitled "The Adult Adjustment of Children of Alcoholic Parents Raised in Foster Homes" (*Quart. J. Studies on Alc.*, Dec. 1944), Anne Roe, Ph. D., reports on 36 children, whose parents were severe alcoholics and maladjusted. These children were raised in foster homes and were compared with a control group of 25 children of normal parentage, similarly raised in foster homes. Children of alcoholic parents did as well in overall adjustment as the control group and compared well with the general population. There were no inebriates among these foster children. It is felt that the expectancy of their becoming inebriates is certainly not more than the expectancy in the general population. This report is in contrast with the common idea of the great prevalence of maladjustment in the children of alcoholics.

Benson Y. Landis, Ph. D., writes on "Certain Expenditures on Account of Inebriety" and the "Estimated Consumer Expenditures for Alcoholic Beverages in the United States, 1890-1943." (*Quart. J. Studies on Alc*, June 1945). In 1941, Buffalo spent $162,616 for the handling of 7,280 admissions of alcoholics to three institutions alone, and treatment of these cases was largely ineffective. Statistics are given for the number of inebriate patients in mental hospitals, and the cost of their care for 1940 is estimated at $12,848,000; the cost of bodily disease is estimated at $18,480,000; the cost of accidents is estimated at $89,170,000; and the cost of crime as $188,650,000. The potential wage loss in 1940 is estimated at $431,886,000. The grand total of expenditures on account of inebriety is estimated at $778,903,000.

It is also estimated that with a national income of $147,927,000,000 in 1943, $6,083,000,000 was expended for alcoholic beverages and that $1,424,000,000 was obtained by federal internal revenue; and it is estimated that the percentage of income spent for alcoholic beverages was 4.1%, which is lower than at any time since 1934, which was also 4.1%. In 1916, 4.0% of the total income, the lowest figure published, was spent for alcoholic beverages. Prior to that, higher percentages prevailed.

It is suggested that with the large amount of money spent for alcohol, the large amount derived by taxes, and the large amount of damage done by alcoholics, a proper procedure would be to expend some of the money received from taxation in rehabilitating alcoholics.

Carney Landis, Ph. D., and Jane F. Cushman, M. A. ("The Relation of National Prohibition to the Incidence of Mental Disease." *Quart. J. Studies on Alc.*, March 1945), criticize some of the previous conclusions as to the effect of prohibition on first admissions for alcoholic psychoses to mental hospitals. Presenting a series of charts, some going back to 1888, they conclude:

The argument that legal prohibition of the sale of alcoholic beverages will decrease the number of

patients entering mental hospitals is not substantiated by the figures from New York State, which state has the largest number of hospitalized mental patients and the longest-existing system of statistical reporting.

In an excellent article (*Quart. J. Studies on Alc.*, Mar. 1945) Harry M. Tiebout, M. D., states that the personality picture of the alcoholic comprises the following qualities, which generally form the nuclear pattern:

1. An unconscious drive or need to dominate; 2. A prevailing negative, hostile feeling-tone; 3. A capacity for ecstatic peaks, in which all hostile emotions become temporarily submerged in an overflow of affirmative feeling; 4. A sense of loneliness and isolation; 5. Feelings of inferiority and superiority which exist simultaneously in the individual; 6. A striving for perfection.

In *Modern Hospital* (63:60-2, 1944), M. Hinenburg discusses "Alcoholism is a Hospital Problem." The conclusion is that alcoholics need hospital care; that the general hospital is best set up to give them such care; and that a plan is proposed that 2 per cent of the hospital's capacity be utilized for the care of alcoholics.

Several articles have appeared advocating the use of intravenous alcohol: for anesthesia for surgical operations; for the treatment of early sepsis; and for medical cases, including metastatic carcinoma and cardiovascular disease.

In an article entitled "Alcoholism, a Social Disease" (*J. A. M. A.*, 127:565-7, 1945), D. B. Rotman states: "The most constant phenomenon in the entire alcoholic picture is the symbiotic relationship between a person addicted to alcohol and a nearby person of an extremely masochistic make-up."

Under the title "Alcohol, Science and Society," 29 lectures with discussion, as given at the 1944 session of the Yale Summer School of Alcohol Studies, have been issued in book form. This book contains the most important material given during the course and covers a very wide field, including physiology, medicine, psychiatry, sociology, anthropology, psychology, religion, law and economics.

Martin Gross, M. D., in an article entitled "The Relation of the Pituitary Gland to Some Symptoms of Alcoholic Intoxication and Chronic Alcoholism" (*Quart. J. Studies on Alc.*, June, 1945), advances the theory that there is a relationship between vitamin deficiency and the functioning of the ductless glands. He holds that the pituitary gland does not function normally if there is a vitamin deficiency and that there is an inter-relationship between vitamin deficiency and the pituitary gland in producing some of the symptoms commonly ascribed to alcohol.

Geriatrics

In the psychiatric literature of 1945, there are but few articles dealing with the problems of aging. A new book entitled "Mental Disorders in Later Life," edited by Oscar J. Kaplan and published by the Stanford Press, contains 17 chapters by different authors, dealing with various aspects of this problem. It is recommended for general reading, and because of its size no specific material can be considered in this review.

In the *Psychiatric Quarterly* for January, 1945, Benjamin Malsberg, in an article entitled "The Expectation of Psychoses with Cerebral Arteriosclerosis in New York State, 1920, 1930, 1940," points out that the expectation of a psychosis with cerebral arteriosclerosis has increased at birth among males from 51.2 per 10,000 in 1920 to 113.9 in 1930, and to 191.6 in 1940. In females it increased from 37.4 in 1920 to 95.0 in 1930, and to 186.3 in 1940. The age of maximum expectation of a psychosis with cerebral arteriosclerosis among males is 60; among females, is 56. He anticipates that there will be a further increase of the admission rate of psychoses with cerebral arteriosclerosis for at least another decade. Since the mortality rate for these cases under hospitalization has been declining, he concludes:

> Consequently, we must look forward to a further increase in the expectation of a psychosis with cerebral arteriosclerosis, as a result of the combined effect of an upward trend in rates of first admissions and a decrease in rates of mortality in the general population.

Hiram K. Johnson and Rudolf Lassner ("Organic Deterioration—The Use of the Worcester-Wells Memory Test for Differential Diagnosis." *Psychiat. Quart.*, April,

1945) conclude that the Worcester-Wells Memory Test, which is standardized for adult age groups, is of special value in testing for organic deterioration and state that memory is always involved and is most amenable to exact testing in organic deterioration. They point out that when one compares the normal memory loss in old age, a large number of elderly psychotics are found to have normal memories. "This indicates that in the advanced age groups, as in all age groups, emotional and personality difficulties are paramount in deciding whether an individual can live outside an institution." They emphasize that one should be cautious in diagnosing deterioration on the basis of a low score since many other factors, such as initial low intelligence, functional psychoses, and emotional factors may interfere with the test.

Nathan Beckenstein and Leonard Gold ("Problems of the Senile and Arteriosclerotic Mental Patient: Review of 200 Cases." *Psychiat. Quart.*, July, 1945) conclude:

> The study of this series of cases shows that the total duration of mental illness in the senile psychotic tends to be 1 to 3 years, that in the cerebral arteriosclerotic psychotic the total duration is generally less than 2 years, that the cerebral arteriosclerotic psychotic has a greater chance of survival and that when he is well enough to leave the hospital he most often does so within 2 months.

In an article entitled "General Paresis in Senility" by Silvano Arieti (*Am. J. Psychiat.*, March, 1945) it is pointed out that the usual viewpoint has been that general paresis occurs rarely in old age and under such conditions does not respond to treatment. In the State of New York about 10 percent of paretics admitted for the first time to state hospitals are 60 years old or more. A report is made of the pathological findings in these cases.

O. J. Pollak ("Morbidity and Mortality of Patients with Psychosis Due to Cerebral Arteriosclerosis," *J. Nerv. Ment. Dis.*, July, 1945) points out that almost one-fourth of 2000 patients who came to necropsy were clinically classified as psychoses with cerebral arteriosclerosis but that only in one-fourth of these patients was the death due primarily to arteriosclerosis, one-half of the deaths being due to pulmonary pathology.

Sylvia B. Ackelsberg ("Vocabulary and Mental Deterioration in Senile Dementia." *J. Abnorm. Soc. Psychol.*, October, 1944) takes issue with the idea that the vocabulary test scores tend to remain relatively constant and unchanged in deterioration and states that the use of a synonym and antonym test affords a reliable and valid measure of mental deterioration in senile dementia.

While most persons think of the deterioration of old age as inevitable and due to organic changes in the brain, George Lawton ("Mental Decline and Its Retardation." *J. Genet. Psychiat.*, April, 1945) insists that many of the mental and physical inadequacies in older persons are purely the result of neglect, laziness and poor habits of work. He insists that one must differentiate between the difficulties created by old age and the way in which an individual reacts to them. He emphasizes that the fear of aging is often the cause of many of these difficulties. He says that a program of merely retiring older persons is unsatisfactory and that provision should be made for special occupations, recreation centers, social clubs, and even marriage brokers.

In the *Journal of Mental Science* (Oct., 1944), W. Norwood East writes on "Crime, Senescence and Senility." The article is a general discussion of the normal and abnormal changes occurring in old age and has everything from quotations from Cicero and Shakespeare to modern psychiatrists and neuropathologists. It is emphasized that while there has been much study of the child delinquent, too little attention has been paid to the aged prisoner; and that, although these aged prisoners have usually received somewhat milder discipline than others, comparable studies of their life histories and the mental mechanisms involved in the committing of the crime have received little attention.

"The Male Climacteric" is discussed by August A. Werner (*J. A. M. A.*, Mar., 1945). He claims that the climacteric is due to an endocrine factor involving gonadal hypofunction in connection with the anterior pituitary function. This in turn disturbs the equilibrium of the two divisions of the autonomic nervous system with the resultant climacteric syndrome, and this condition rules both in males and females. However, he feels

that the climacteric occurs later in men than in women and commonly has fewer symptoms; it is the result of a neuroendocrine imbalance and is functional. He classifies the symptoms in the male as (1) nervous, (2) circulatory and (3) general. Under nervous symptoms he includes feelings of tension, irritability, sleeplessness, numbness and tingling of the extremities, headache, inability to concentrate, poor memory, and feelings of depression. Under circulatory symptoms he includes hot flushes, tachycardia, palpitation and dyspnea, vertigo, and cold hands and feet. General symptoms include lassitude and fatigability, vague pains, a decline or loss of potency but often a persistence or even increase of libido; constipation is frequent. Fifty-four cases are reported, and it is concluded that they all arose on the basis of testicular hypo-function or afunction. Testosterone propionate, 25 mg. three times a week, by intramuscular injection, relieved the symptoms and produced a feeling of well-being. This medication should be administered for two or three months. The author warns that testosterone should not be given for the purpose of stimulating potency.

NEUROSYPHILIS

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The chief interest in the subject of neurosyphilis this year has been centered about the effectiveness of penicillin as a therapeutic agent. But because only two years have elapsed since the drug was first administered to cases of late neurosyphilis, a satisfactory, time-tested evaluation cannot be presented. Only a few of the many clinics, hospitals and individuals now using penicillin in late neurosyphilis have reported their preliminary results. However, a fairly comprehensive statement is made possible by the fact that clinics participating in the O. S. R. D. sponsored study have had interval reports of results circulated from the central office.

A follow-up study by Nelson and Moore (1) of the 10 cases of acute syphilitic meningitis treated at the Johns Hopkins Hospital in 1943, and published originally by Nelson and Duncan (2) shows penicillin to be a more satisfactory therapy for this form of the disease than arsenic. They recommend a total of at least 2 to 3 million Oxford units and spinal fluid examinations at regular intervals to detect relapse.

Stokes (3) in an interim report of studies in late syphilis at the University of Pennsylvania gave encouraging data on all types of late neurosyphilis—but since his data were presented without critical analysis, evaluation and comparison with data from other clinics will have to await his next report.

The first year's experience with penicillin in the treatment of parenchymal neurosyphilis at our clinic at the Boston Psychopathic Hospital (4) was encouraging and the results can now be augmented by further experience and a greater number of cases.

Penicillin can be accepted as an active antisyphilitic agent and as a useful adjunct to our armamentarium in the treatment of all forms of neurosyphilis. It is apparently sufficient, if properly administered, for acute syphilitic meningitis, for many cases of asymptomatic neurosyphilis and for some cases of meningovascular neurosyphilis. In general paresis, primary optic atrophy, tabes dorsalis and congenital neurosyphilis, evidence is accumulating to indicate that more satisfactory results are obtained if penicillin is administered in conjunction with some form of therapeutic fever. In time, sufficient data may be collected to show that many cases of tabes and possibly also of optic atrophy may be safely managed by repeated courses of penicillin alone. At present, however, it can only be stated that such cases are best cared for on an individual basis. On the other hand, cases of general paresis should not be treated by penicillin alone except in treatment centers where the strictest possible follow-up system can be carried out. No data have been published to show that intrathecal penicillin has any advantage whatsoever over intramuscularly administered penicillin in any form of neurosyphilis.

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CHILD PSYCHIATRY. MENTAL DEFICIENCY

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In the past year, when armed warfare ceased and myriads of participants started on their way home, psychiatric interest and planning were naturally preoccupied with the civilian readjustment of veterans. Child psychiatry stepped respectfully aside and continued yielding much of its personnel and all necessary journal space to the pressing needs of the hour. To cite but one specific example, of the 44 articles published during 1945 in *Mental Hygiene* only 5 bore any kind of relation to children. Nevertheless, the end of the war was also responsible for the return from military service of many skilled child psychiatrists, who are beginning to resume their work with children. Their temporary absence from clinics and private practice had one salutary result: the public was acutely aware of the limitation of facilities for child guidance and child psychiatry. The tremendous demand on overworked pediatricians, the exaggerated publicity given to juvenile delinquency, the effect of the war situation on family life (sampled interestingly by Levy(1)), and many other factors created in the population an ever increasing hunger for psychiatric attention to children and adolescents. It is recognized clearly that satiation of this hunger must be provided by the intensive training of many times the now available number of workers in the field (psychiatrists, psychologists and social workers).

Symposia.—The ODT ban on conventions rendered impossible the usual gregarious exchange of ideas and experiences. This lack of a forum was made up to some extent by a few symposia on specific topics. The *Bulletin of the Menninger Clinic* brought out a special pediatrics number (November 1944) in which the relations between pediatrics and psychiatry, early infant training, anorexia, pre-adolescent behavior problems, the pediatricians' evaluation of emotional maladjustment, and psychological testing were discussed competently in the light of modern insight. The *American Journal of Orthopsychiatry* reported a symposium on psychotherapy for children, based on a detailed case presentation by Vander Veer. The differences in therapeutic attitudes aired in the discussion raised the question how, in view of such differences, "patients ever manage to get well and what it is that makes them well." The answer was that "all forms of psychotherapy entail the reliving of certain pathogenic experiences in relation to a new person" and that differences in theory do not mean much "so long as one is always consistent and affords this opportunity for reliving to the patient." *The Nervous Child* offered three symposia: one on problems of adolescent girls, one on problems of adolescent boys, and one on group therapy for young children. An issue on tics will appear shortly.

Periodic Literature.—Goldfarb's study of the effects of psychological deprivation on institutionalized infants, which received the 1944 Devereux Schools award, was made accessible to the public(2). It is a fundamentally important contribution, which shows that lack of emotional and cognitive stimulation can produce phenomena quite similar to those observed in certain organic (postencephalitic and posttraumatic) conditions. The presence of hostility and unprovoked aggression without concomitant guilt and anxiety, restlessness, evidence of concept deficiency, and superficiality of relation-

ship are some of the most startling common denominators.

Levy(3) reported the effects of surgical operations (mostly tonsillectomies) on 124 children referred for behavior problems. In the younger children, there were manifestations of anxiety and dependency; in the older group, hostility and increased aggressiveness were noted. The most frequent fears were of the dark, physicians and nurses, and strange men. Levy suggested postponement of operations, if possible, to the age of at least 3 years, an explanation to the child of what is to take place, and contact between mother and child before and after the operation.

A wholesome reaction to indiscriminate correlations between "behavior problems" and electroencephalography has finally come in an article by Michaels(4), who called attention "to the dangers of drawing conclusions from the relationship of a relatively simple, graphic record, the electroencephalogram, and a vague, complex, qualitative entity, behavior disorder syndrome."

The revolt against mechanical overregulation of infant care has resulted in further emphasis on the individual needs of babies. Aldrich and collaborators(5) reported a detailed study of the crying of newly born babies; among other things, attention was given to personal factors, with the conclusion that "a definite correlation between crying and nursing care was noted: the more care, the less crying." Trainham, Pilafian and Kraft(6), who should have given credit to the pioneer work done by Clara Davis almost 20 years ago, saw excellent results of a self-demand feeding regime in a pair of twins during the first 13 months of life. Escalona(7), discussing problems of eating behavior in very young children, suggested that the close contact between infant and mother, stressed so much in the literature, applies equally to infant reactions to feeders other than the mother.

Regarding specific behavior phenomena, Geleerd(8) published observations on temper tantrums, and Mahler and collaborators(9), on the basis of a follow-up study, drew up tentative conclusions concerning the treatment of children with tics.

Mental Deficiency.—Werner(10), who, together with Strauss, has for several years established a clear distinction between brain-injured ("exogenous") and familial ("endogenous") feeblemindedness, found added confirmation of this difference through application of the Rorschach test; in the exogenous group, he found signs which are also observed "as a characteristic part in the reactions of brain-injured adults." Abel(11) evaluated the responses of negro and white morons to the thematic apperception test, found them to correlate well with Rorschach responses, and made a plea for further studies along those lines.

Nowrey(12) a brief review of the history of mental deficiency. Despite its brevity, it represents a scholarly, instructive and fascinatingly written piece of work.

Falk, Penrose and Clark(13) made a further contribution to the dissipation of the myth that epilepsy causes mental deterioration. They tested 85 institutionalized epileptics in 1935, 1938 and again in 1944. The result was that "no evidence of mental deterioration was found except in the case of three psychotic epileptics."

Other Events of the Year.—The death of Dr. Caroline Zachray, director of the Bureau of Child Guidance of the New York City school system, has removed from the scene a courageous advocate of the application of mental hygiene to education.

The end of the war has brought to light a most promising trend. Many physicians in the armed services have become profoundly impressed by the significance of early life experiences in determining the stability of the combat soldier and sailor. Especially those who had previously been pediatricians or psychiatrists, but also many others have come to feel the need for orientation in child psychiatry. Many have already undertaken steps to secure such training. There is reason to believe that many others will follow shortly.

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HEREDITY AND EUGENICS

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The progress of human genetics during the past year was appreciable, although less dramatic than the success scored by the technical and military sciences. No global war was won by the strategy of eugenicists, and it is questionable whether the triumphant development of atomic energies will ever be useful for constructive biological purposes. However, mankind must be preserved physically, and the survival of its finest cultural institutions and eugenically desirable family stocks must be insured, if any advance in the biological sciences is to be meaningful.

The steady headway of genetics as a whole, indispensable for a better understanding of genetic problems in neuropsychiatry, was made along widely divergent paths. One of them led into the field of *protein chemistry,* forcing geneticists "to get on speaking terms with the amino acids" (R. R. Cook). The work of Beadle and his research staff provided remarkable experimental evidence for the theory that the synthesis of the essential chemical constituents of living matter is under the control of genes. Studies of Neurospora mutants made it possible to demonstrate in regard to a number of specific chemical reactions that they depend on the effect of a series of non-allelic genes. The significance of this progress in describing gene action in physio-chemical terms was emphasized by S. Wright, J. Alexander, and N. H. Horowitz and his associates.

In the *biometric* line of approach to the knowledge of constitutional variations in effort intolerance and corresponding personality deviations, careful anthropometric investigations of neurotic English soldiers were carried out by Rees and Eysenck. Persons classified as "leptomorphic" (body type index of more than 1 S. D. above the mean) were found to have a significantly increased tendency towards schizoid personality traits, the leptosomatic type of effort syndrome, and the affective group of neurotic symptoms (anxiety, obsession, depression). A factor of general body size and a factor of specific body type were considered sufficient to account for all the correlations established within the limits of the probable error.

Other notable contributions to the study of the human constitution were related to the hereditary nature of brain wave patterns (W. Lennox, E. and F. Gibbs), autonomic nervous system function (H. Jost and L. W. Sonntag), and vasomotor instability (R. W. Waggoner and U. Malamud). Vascular sensitivity to tobacco was shown by Silbert to be inherited as a special sex-linked factor producing thromboangiitis obliterans, while the general value of viewing the human organism as a "total energy unit" was reemphasized by Draper and his coworkers.

Genetically determined variations in *intellectual* development were studied by Lennox and Collins in normal and epileptic twin partners, by the schools of Snyder and Strandskov in regard to the Rh factor and other human blood characteristics, and by Fraser Roberts in reference to the distribution of intelligence between the sexes. Very curiously, the intellectual difference between boys and girls as demonstrated by a verbal group test, the advanced Otis, was found to rest upon a significant difference in the degree of variance rather than on a difference in mean intelligence. Boys appear to be much more variable in general intelligence than girls, because they spread further out into the extremes either of brightness or of dullness. The brightest (or dullest) 100 children in every 10,000 may be expected to show a ratio of 59 boys to 41 girls. In the final 0.1 per cent at the highest and lowest intelligence levels there will be nearly twice as many boys as girls. The practical consequences of this disproportion in re-

gard to planning both for the bright and for the dull are evident.

Similar attention should be attracted by Kaplan's observation that the war led to a considerable increase in the number of marriages contracted especially by mentally defective females following sterilization. According to the report of social workers, imbeciles and morons had a higher percentage of "satisfactory" marriages than the borderline and dull cases.

Genetic investigations in the field of *neurological* disorders included pedigree studies on deaf-mutism and polydactylism by Odiorne, and on spina bifida by Newman and Quisenberry. The most comprehensive work was that of Sjoegren on hereditary ataxia, confirming single-recessive inheritance for typical Friedreich cases, and single-dominant inheritance for Marie's cerebeller form. These two types of the disease were never found interchanged in the same families, and there was some evidence for the assumption that the genes producing the various forms of familial ataxia may be multiple alleles.

Common misconceptions concerning the important phenomenon of genetic *linkage* were pointed out by Fraser Roberts. He stressed that, instead of the random distribution seen when genes are situated on different chromosome pairs, linked genes either tend to stick together unduly often or, just as frequently, tend to separate unduly often.

The problem of the inheritance of *schizophrenia* was either held in abeyance or completely ignored by a number of investigators. The former group was led by R. G. Hoskins, the 1945 Thomas W. Salmon Memorial lecturer on the "Biology of Schizophrenia." Barahal was among those who supported the reviewer's genetic theory, and Popenoe regarded it as "one of the best established facts in the whole field of mental disease." Last year's prize for the misinterpretation of basic genetic principles belonged to L. A. Osborn, who introduced the concept of "psychic contagion" in order to explain the observation of five psychotic sisters.

Interesting data on the multiplicity and partially sex-linked nature of secondary genetic factors modifying the manifestation of the schizophrenic genotype were supplied by Penrose's analysis of 5456 pairs of affected relatives. The most frequent type of relationship in pairs of admitted patients was found to be sister and sister; the least frequent, father and son. Correlation coefficients calculated for first admission ages showed the combination of mother and son to be significantly more alike than that of father and son.

Competent accounts of the intricate interaction of *heredity and environment* in mental health and individual adjustment were presented by Thorndike, Rife, and the authors of a memorial publication of the American Eugenics Society, "How Heredity Builds Our Lives." This special issue of the *Eugenical News* was a fine tribute to R. C. Cook's departed coauthor, Barbara S. Burks, whose tragic death in May 1943 cut short the work of a keen scholar of human genetics.

The right of the individual to be *well-born* and the need of a constructive *eugenic* post-war program for democratic nations were stressed by M. A. Bigelow, P. Popenoe, and G. H. Stevenson. In his excellent digest of Guyer's standard book, "Speaking of Man," Bigelow reiterated the warning that a successful democracy cannot escape lapsing into an ever-lowering level of mediocrity without a continuous output of persons of high ability. "If the less able strains in our own nation continue to outbreed the more able, as they are doing at present, then the problem becomes one of how far the general average can descend before the people as a whole become incapable of adequate self-government. When that level is reached the nation is ripe for dictatorship by state or monarch, or for conquest by some abler nation. No moral precepts or pious exhortations will avail against its own stupidity. With the demise of its superior native ability a democracy is doomed." It should be difficult for any serious-minded reader to question the sincerity of the author's belief in democracy as a biological problem, and in the individual as the unit of democracy.

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EPILEPSY

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This review does not include electroencephalographic observations in epilepsy. It covers the years 1944 and 1945. Perhaps the most substantial contribution during this period is the book by Dr. Oswei Temkin(1) entitled "The Falling Sickness." This is the first and only book-length account of the history of epilepsy. The time limits are from Hippocrates to Hughlings Jackson. Seven hundred authors are quoted; and every aspect of the complicated problem of epilepsy as the ancients saw it is covered. The book gives evidence of the most detailed and scholarly research. It brings to light the opinions regarding causes and treatments which are buried in far distant libraries and in classical tongues. Demonstrating, as it does the slow growth of scientific and medical knowledge, the book should interest all doctors. It is, however, of particular value to those psychiatrists who wish to refurbish their minds and increase the historical depth of their knowledge. Of course, all those immediately concerned with the treatment of epileptic patients, should buy the book and absorb it in divided doses.

An interesting personal view of the men responsible for the development of interest in epilepsy within The American Psychiatric Association is in the reminiscences of Collier(2).

Epilepsy, as related to the armed services, will assume increasing attention in coming years. An excellent analysis has been made of the army men and women who were studied at the Walter Reed Hospital in Washington. This is by Roseman(3). Aside from the electroencephalographic findings, his observations that the diagnosis of psychomotor seizures is generally missed by army doctors, and his demonstration that patients can be handled expeditiously and given sound medical advice and social help before discharge are of particular interest.

Seizures are of infinite variety. An unusual type is the nymphomania of a woman whose prolonged and embarrasing abnormal behaviour was corrected by surgical removal of a neoplasm in the topical projection of the genital structure of the right paracentral lobule(4). Speaking of neoplasms, a normal encephalogram was present in four patients in whom intracranial tumor was later demonstrated(5). On the other hand, in local atrophic lesions of the brain, a normal encephalogram is a strong contraindication to craniotomy(6).

In the field of laboratory research, the chemical medication of nerve impulses is receiving increasing attention. In a study of the serum choline esterase, in patients with epilepsy or with barbiturate addiction, the level of the substance was found to be low when the barbiturate was withdrawn. Since seizures are increased in frequency during this period, the low level of choline esterase may be suspected of playing a part(7). The endocrine glands loom prominently as a background factor in seizures. In Minneapolis much attention has been given to the influence of substances elaborated by the adrenal cortex because a patient has been free of seizures for three years while taking desoxycorticosterone acetate. This substance, given to rats, caused a 20 percent reduction in the potassium of the brain without altering the fluid content of this organ(8). On the other hand, this substance was used in two patients without benefit by Aird. It gave twenty-four hour protection against induced convulsions in mice, but not in cats(9). Interesting observations should result from the ability to record changes in the oxygen tension of the brain in living animals. Workers at the Illinois Neuropsychiatric Institute believe the low oxygen tension recorded in the cortex before, during, and after convulsions is due to the increased metabolism of the cortex which depletes the tension of availble oxygen(10).

The intellectual and social progress of patients is receiving increasing attention. At the Colony at Lingfield, England, much interesting information and some surprising talent has been found in children who were encouraged to draw or paint(11). A study of twins permits resolution of the competing factors of heredity and of acquired conditions, including seizures, in assigning the blame for reduced intelligence. Comparison of the intelligence quotients of 63 normal twins and of 30 twins affected with seizures led to the conclusion that the person's mental endowment was most influential but that the presence of brain pathology resulted in greatly lowered scores(12). A follow-up study of 93 college students with epilepsy demonstrates that seizures in students with good intelligence need not deter academic training or successful social and vocational adjustment after leaving college. At the University of Michigan one student in 1600 had epilepsy(13).

Artificially induced convulsions have been given to epileptics both as diagnostic and as therapeutic procedures. The freezing of a radial artery in addition to electrical stimulation is said to be especially efficient in producing convulsions(14). The natives of Peru react with a convulsion to a smaller dose of metrazol than Europeans. That the average Peruvian weighs 10 kilograms less than the European patients may be one explanation(15). A French writer in shocking 12 women with infrequent seizures did not find an unusually low threshold. No beneficial effect on seizures was noticed but behavior was improved(16). Shock therapy was given to 180 children in Argentina. Some improvement was noted in those with a convulsive syndrome(17). In England 11 out of 15 epileptics had fewer fits after undergoing elec-

tric shock therapy and in 7 of these an associated psychosis was improved. Periods of psychic equivalents with aggressiveness and bad temper could be terminated by an induced convulsion. Treatments were given once or twice a week for from three to nine months. In some cases an increasing confusion was mitigated by decreasing the frequency of treatments(18).

Experience with post traumatic epilepsy points the necessity of removing any gyrus that is partially destroyed because an insufficient blood supply to that gyrus may initiate or perpetuate seizures(19).

As for drug therapy, the proponents of glutamic acid in the treatment of petit mal and psychomotor seizures state that the levorotatory form is not essential(20). Out of 40 patients given delvinal sodium (vinobarbital). 15 were greatly helped and 8 were worse. Thirty-two of the 40 showed some mental improvement(21).

In animals trimethyloxazolidine dione was found to be more effective than phenobarbital or dilantin in controlling induced convulsions(22). However, when used in patients, this drug (trade name "tridione") proved to have remarkably good results in patients suffering from one of the petit mal triad, in which the dart and dome formation appeared in the electroencephalogram. The medicine tended to increase the frequency of grand mal if they were also present. It caused photophobia in approximately one-third of the patients(23, 24).

The responsibility of government in the care of the sick and handicapped is receiving increasing attention. The testimony presented last May before the Congressional Committee studying possible federal aids to the handicapped is embodied in a special report which can be obtained from the government printing office, or from the American Epilepsy League(25) at 50 State St., Boston.

Abstracts of the world's literature on the subject of epilepsy are in the annual publication *Epilepsia*(26).

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ELECTROENCEPHALOGRAPHY

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Developments during the past year in electroencephalography took the form of normal growth rather than revolutionary advance. A beautifully illustrated and completely authoritative monograph on clinical electroencephalography has been published by Kornmüller(1). The results of electroencephalographic localization in 100 cases of frontal lobe tumor are reported by Yaeger and Luse (2). They interpreted all EEGs without knowledge of the clinical data and did not count as correct bilateral frontal localization when the lesion was found to be unilateral. They obtained an over-all accuracy of 76 percent. The type of the tumor, they believe, can be estimated with some degree of accuracy by considering fine differences in electroencephalographic abnormality. Cobb(3) reported an accuracy of 50 percent in the localization of lesions in the accessible cortex. He re-emphasizes the difficulty of localizing midline lesions, particularly slow-growing meningiomas. His study was based on 125 confirmed intracranial space-occupying lesions. He found that out-of-phase relations in bipolar leads were ideal for localization when present, but stated that it was frequently necessary to depend for localization on maximum intensity in a given lead.

Walter and Dovey(4) reported on the use of the Walter frequency analyser as an aid in the detection of subcortical tumors. They believe that intermediate slow activity with a frequency of approximately six cycles per second is a more or less characteristic finding in such cases. They apply the term "theta" to this rythmn, and report that its demonstration is facilitated with the Walter frequency analyser. Cobb(3) also subscribes to the importance of intermediate slow activity in deep tumors. Dovey and Walter(4) agree that "theta" activity is common in cases of concussion and they argue that this is due to involvement of basal structures. A more reasonable explanation would appear to be that whereas severe cortical damage is associated with very slow waves (1-2 per second), mild damage is associated with waves of intermediate frequency (approximately six per second) and a deep tumor at some time in its development produces a mild degree of cortical damage and therefore a moderate degree of cortical slowing. Visual analysis comes off a poor second in contrast with automatic analysis of the EEG in the discussions by Dawson and Walter(5) and Hill(6). Experience, however, indicates that with training, the human eye and brain are superior to any analyser either built or planned. Frequency analysis gives a partial expression which is an inadequate substitute for intelligent interpretation of the EEG.

When a mass is introduced subcortically, slow waves develop in the surrounding cortex according to Ulett(7). However, if an experimental space-occupying lesion is produced subdurally or extradurally the normal rapid activity disappears and there is flattening of the EEG. All these changes are more easily discerned with electrodes immediately on the cortex than with extra-cranial leads. If a space-occupying lesion does not increase in size, the electroencephalographic response tends to subside.

Four cases with abnormalities during encephalitis and meningo-encephalitis are reported by Ross(8). He points out that the electroencephalographic disorder is not specific for encephalitis, and is not always proportionate to the severity of the clinical picture. It may outlast the acute phase of the menigo-encephalitis and may stimulate epilepsy or brain tumor.

Greenblatt and Levin(9) have clarified the

question of electroencephalographic abnormality in central nervous system syphilis by pointing out that 20 percent of the cases in their series had a history of seizures and that "in central nervous system syphilis (as elsewhere) electroencephalographic abnormality correlates highly with a history of seizures. Electroencephalographic disorder was commonest in meningovascular syphilis (60 percent); next came paresis (55 percent); then optic atrophy (44 percent) and last tabes, in which only 14 percent abnormality was found, no more than to be expected in control subjects. It will be remembered that Finley, Rose and Solomon (10) reported a significantly high incidence of abnormality in tabes. These authors also stated that seizure discharges cannot be considered specific for epilepsy because they are found in neurosyphilis. This is a *non sequitur* in view of the high incidence of symptomatic epilepsy in this condition and the findings of Greenblatt and Levin are in no sense surprising.

Greenblatt(11) reports that the high voltage slow waves he commonly observed during fever therapy correlate with a drop in the arterial CO_2 level. Thirty-six cases of neurosyphilis have been studied by Callaway *et al.*(12) with particular regard to the electroencephalographic findings before and after a course of penicillin treatment. Many abnormal EEGs became normal and most of the remaining records showed varying degrees of improvement. Although there was no absolutely rigid relation between the electroencephalographic and clinical improvement they tended to be associated and the authors consider the EEG a valuable indicator in following the response to treatment.

The predicative value of the EEG in cases of head injury is emphasized by Denis Williams(13). A good general discussion of the value of electroencephalography in cerebral trauma is given by Marsh(14). By studying 213 shipyard workers who sustained head injuries within twenty-four hours of their injury and 211 normal control subjects Dow, Ulett and Raaf(15, 16) have brought important quantitative evidence to support the conclusion that there is a relation between the severity of the trauma and electroencephalographic abnormality developing after injury; and more precisely that the degree of electroencephalographic abnormality correlates with the force expended on the brain. An experimental study on dogs by Dow, Ulett and Tunturi(17) supplements this clinical study. The authors do not accept the mechanical-stimulation theory of concussion advanced by Walker, Kollros and Case(18) because impacts of equal intensity caused more marked effects in animals under general anesthesia than those under local anesthesia. Furthermore, no speeding up of cortical activity was noted at any time as a result of trauma. The authors found the EEG to be a somewhat insensitive indicator of cerebral commotion. Tests based on correct conditioned differentiation were found to be more sensitive than the EEG. The comparative value of the EEG and psychological testing in the diagnosis of brain damage was studied by Greenblatt, Levin and Atwell(19). They found that in a heterogeneous group of patients with organic brain disease the results of psychological tests correlated more highly with brain damage than did the electroencephalographic findings. Where epilepsy was present, however, the EEG was more significant than the psychological test. The clinical examination revealed brain damage in 91 percent of the patients who had both abstract impairment as indicated by psychological test and electroencephalographic abnormality. These authors emphasize the fact that in chronic nonprogressing or slowly progressing brain lesions the EEG is often normal or only slightly abnormal despite well marked cerebral pathology.

Echlin's report(20) on the electroencephalographic classification of 100 cases of epilepsy raises many questions that are answered in the previously published report by Gibbs, Lennox and Gibbs(21). Pacella, Kopeloff and Barrera(22) describe and illustrate the development of focal abnormality in the EEGs of monkeys on whose cortices an "epileptogenic" substance had been placed. The focus corresponded to the clinical manifestations in each case. Electrical stimulation of the frontotemporal regions produced unilateral responses indicating that the epileptogenic focus could be thrown into activity by a stimulus that was insufficient to convulse the normal cortex. Hursh(23) believes that because in two cases with nearly com-

plete section of the corpus callosum, petit mal discharges appeared simultaneously in the two hemispheres, such discharges probably originate in the thalamus or subthalamus. The anterior commissure was not divided in either case, however, so the location of the pacemaker for the petit mal discharge is by no means settled.

In a study of arteriosclerotic and senile mental patients Liberson and Seguin(24) found that one-third had abnormally slow EEGs and one-third were entirely normal. Abnormality was most common in patients with confusion and irritability; normality was commonest in the group with agitation. The authors re-emphasize the fact that organic lesions may not produce definite electroencephalographic abnormality. A case of subarachnoid hemorrhage has been studied by Savitsky, Pacella and Stern(25) before and after the occurrence of the hemorrhage. Some slow activity was found prior to the hemorrhage but definite slowing occurred after the hemorrhage. The EEG became increasingly abnormal for some time after the hemorrhage even though there was no evidence of increasing pressure or subsequent bleeding. From a study of 157 chronic alcoholics Greenblatt, Levin and diCori(26) concluded that such patients when devoid of psychosis show no significant electroencephalographic abnormality. In the group with psychosis electroencephalographic abnormality was highest in Korsakoff's syndrome. No significant electroencephalographic abnormality was found in patients with a history of "rum fits" and these are considered to be "non-epileptic." Five patients who developed pathological behavior whenever small amounts of alcohol were injested showed no abnormality suggestive of epilepsy.

Kennard, Bueding and Wortis(27) have reported low voltage 16 to 30 per second activity as the outstanding feature of the EEG during delirium tremens. This type of record is classifiable as normal. Such activity tends to decrease with recovery. Those patients whose EEGs contain most fast activity recovered slowest and as a group were the least stable socially. This is not the type of record encountered in what Engel and Romano(28, 29) call *delirium* nor with the slowing which Engel and Rosenbaum(30) find in acute alcoholic intoxication. The suitability of the term *delirium* as applied to the heterogeneous group of conditions which give high voltage slow waves as a form of electroencephalographic abnormality is open to question.

Engel, Ferris and Romano(31) report three cases in which localized slow activity was found in association with scotomas in migraine. The illustrations in two of these cases are highly convincing. In the third case, however, the change is not sufficient to be accepted from the figure alone. The authors conclude that they have shown focal electroencephalographic abnormality in migraine. It is of the same type and appeared under the same general conditions as severe headache after decompression. They favor the assumption that the scotomas of migraine are due to vasoconstriction of blood vessels supplying the calcarine area.

Engel and his co-workers(32, 33) state that in all types of vasodepressor and carotid sinus syncope the EEG shows high voltage slow waves providing consciousness is lost. They do not leave open the possibility that the cerebral anemia may be abrupt and may be accompanied by a phase of stimulation with the result that flattening of electrical activity develops without the appearance of slow waves. Nor do they leave room for the possibility of a central type of carotid sinus reflex in which there is a localized but critical alteration of cerebral neuronal activity without resultant electroencephalographic abnormality, for example, by acting through a "consciousness center" in the mid-brain. All cases of carotid sinus reflexes of a central type in which consciousness is lost without electroencephalographic abnormality are suspected by Engel and his collaborators of being hysterical. Their cases with a central type of carotid sinus reflex showed electroencephalographic abnormality over the motor area on the side homolateral to the irritable sinus. They presume that in such cases there is a reflex vasoconstriction of the cerebral blood vessels producing a localized ischemia. One wonders whether patients with a central reflex who show localized abnormality over the corresponding motor area would do so if pressure on the sinus were insufficient to occlude the carotid artery.

A patient who developed carotid sinus syncope after ligation of the carotid artery for

intracranial arteriovenous aneurism is reported by Roseman and Woodson(34). Electroencephalographic and electrocardiographic tracings are presented to indicate the changes that occurred when surgical cure was effected. Rogers(35) has used the EEG as an indicator of cortical function when the internal carotid was temporarily occluded prior to its permanent ligation for intracranial aneurism. Ewalt and Ruskin(36) report that almost all patients with congestive heart failure have abnormal EEGs usually of the slow type, whereas less than one-half of those with clinical heart disease and no signs of congestive failure show slow waves. In parathyroid insufficiency Odoriz *et al.*(37) report that alpha activity tends to disappear and beta activity to increase. Single spikes are common and 2 to 3 per second waves (usually in groups of 6 to 7 in the frontoparietal leads) become prominent. Some mention is made of the excessive vulnerability of such patients to hyperventilation. This point should be stressed because a patient with hypoparathyroidism may go into a severe tetany, that is difficult to relieve, if he is hyperventilated for two minutes in the standard manner. Frontal lobotomy, according to Cohn(38), produces focal slow waves which may or may not persist. Hyperventilation after lobotomy may produce pronounced slowing in cases which prior to operation showed no such response. One out of 30 cases developed generalized convulsions.

Among patients with mental diseases, drowsiness and sleep patterns are commonest according to Liberson(39) in manic and insomniac patients. Schizophrenic catatonic patients may show an attention response in the form of flattening of alpha activity, while completely unresponsive in other respects. In a group of 31 patients with obsessive-compulsive states, Pacella, Polatin and Nagler(40) found 64 percent with abnormal EEGs. Strauss(41) reports that the only significant difference between psychoneurotics and normals is a lack of good alpha activity. Such activity was particularly rare in patients with anxiety and difficulties in adjustment. In some neurotics an increase in alpha activity occurred after a few deep breaths or merely on the command to hyperventilate. In contrasting the EEGs of 100 psychoneurotic patients with those of normal adults Brazier, Finesinger and Cobb(42) found that there were no gross abnormalities. The wave pattern of the psychoneurotics fell within the normal range. However, beta activity was higher in the psychoneurotic group. The subgroup with anxiety neurosis had faster dominant frequencies than the controls.

According to Heppenstall, Hill and Slater (43) the EEG has little or no prognostic value in the war neuroses. Michaels and Secunda(44) report that electroencephalographic abnormality does not correlate with the vague and complex syndrome of behavior disorder but with certain specific aspects of this syndrome, more especially with eneuresis. Males were found to have electroencephalographic abnormality more commonly than females; therefore, not only age but sex must be controlled. In a further study by Michaels(45) a positive association is reported for electroencephalographic abnormality and eneuresis, a less definite but positive association with fire-setting, and a negative association with stealing. Knott and Gottlieb(46) found that 44 percent of 58 patients with the diagnosis of psychopathic personality, without evidence of organic brain disease, had abnormal EEGs characterized by the presence of slow or very slow waves. A significantly greater proportion of abnormal EEGs was found in those with a family history of psychopathic maladjusted personality, chronic alcoholism, epilepsy and a personal history of cerebral trauma, or severe illness, than when none of these factors was present. Forty-nine percent of 67 children with primary behavior disorders and without signs of organic brain disease were found to have abnormal EEGs by Gottlieb, Knott and Ashby(47). As in the adult group with psychopathic personality, the preponderance of abnormality resided in the group with a "positive" personal or family history. In patients with mental diseases Liberson and Seguin(48) report a slight correlation between electroencephalographic abnormality and the presence of hereditary factors. The importance of constitutional factors in determining the character of the EEG has been studied in 74 pairs of twins by Lennox, Gibbs and Gibbs(49). Agreement between the physical and electroencephalographic criteria for identity is reported in 88 percent of the

pairs, doubtful agreement in 8 percent, and disagreement in 4 percent. The authors conclude that the brain-wave pattern is an hereditary trait and that in the absence of acquired modifying conditions it can be used in genetic studies and for tracing the heredity of neuropsychiatric diseases associated with cerebral dysrythmia.

A high incidence of electroencephalographic abnormality (75 percent) is reported by Silverman and Rosanoff(50) in homosexuals. The question arises as to whether proper allowance was made for age. The conclusion that an inherited or early acquired abnormality of the central nervous system plays a contributory rôle in the development of homosexuality would be unexceptionable if changed to read "in *some* cases of homosexuality." Silverman(51) has compared the effect of amytal, benzedrine and barbiturates on the behavior of criminal psychopaths. He found that dilantin improved both the EEG and the behavior in some cases. The number of cases involved is small. Unless specifically excluded a group of criminal psychopaths is likely to include a group of psychomotor epileptics (with or without a history of major or minor convulsive seizures). On dilantin medication a certain percentage of these might be expected to show improvement as regards both their brain waves and their behavior. Epilepsy can appear in many forms; it may be clinically diagnosed *gastric neurosis, enuresis, hysterical fugue, schizoid psychosis, behavior disorder,* or *criminal psychopathy*. Only endless confusion will result if the original diagnosis is retained in spite of the finding of significant electroencephalographic abnormality and in the face of a good response to anti-epileptic medication.

The clinical and physiological effects of unidirectional fluctuating current when used to produce therapeutic convulsions were studied by Proctor and Goodwin(52). They report less electroencephalographic abnormality with this form of current than with alternating current. They state the patients who had full remissions showed no severe cerebral dysrythmia, and those with a social remission showed less slow-wave activity than the group requiring continued hospital care. Thus with unidirectional fluctuating current as a convulsing agent the electroencephalographic response correlated with the clinical result.

No statement is made as to whether or not the number of shocks was the same in all groups. Some doubt arises as to whether all groups were treated in an exactly comparable manner, particularly in view of the statement that temporal electrodes were used for sixty cycle alternating current stimulation, whereas for stimulation with unidirectional current, leads were placed on the left temporal area and the vertex. Pacella and Barrera(53) report that in over 500 patients who received electroshock, 2 patients developed spontaneous epileptic seizures six and one-half to eight weeks after termination of the treatment. In neither case was there a previous history of convulsions nor a family history of epilepsy. In both instances the brain waves were abnormal prior to the first electroshock. The authors consider it advisable to obtain a pre-shock EEG in the presence of a history of childhood convulsions or family history of epilepsy. Bagchi, Howell and Schmale(54) also emphasize the relation between post-shock electroencephalographic abnormality and the preceding EEG. They state that patients with epileptoid EEGs are more prone to show seizure patterns in the post-shock period than those with normal EEGs. No significant difference was found between the EEGs of patients who did, and those who did not respond to therapy. Their experience supports the general conclusion that the degree of electroencaphalographic abnormality tends to vary as the number of shocks and inversely as the interval between shocks. Clark and Ward (55) re-emphasize the close homology between the EEG of man and of the cat. A detailed study of the comparative physiology of electrical activity of the cortex has been published by Bullock(56). He reports that it is easy to obtain activity resembling the human EEG in all vertebrates as far down as the frog. Lower animals, however, show fast activity which may be superimposed on slower components but they do not have activity strictly comparable to the normal human EEG. According to Morison and Bassett(57) the intralaminar area of the cat's thalamus can maintain 8 to 12 per second bursts even after decortication, section of the optic tract, and transection of the mid-brain.

Ashby(58) reports that in man and dogs the distribution of carbonic anhydrase in the cerebrum is parallel to the distribution of alpha activity. Woolf and his co-workers (59) have found that lesions of the retina, optic tracts, or striate cortex produced marked impairment of photic driving, *i. e.*, the establishment in the occipital cortex of a rhythm identical with that applied by a light stimulus to the retina. Bilateral temporal lobotomy, on the other hand, enhances photic driving. This function probably represents a low order of cortical activity. The authors found no evidence that the laminated character of the lateral geniculate body is related to color vision. Adrian(60) has discussed the relations between attention, vision and the alpha activity in terms of broad physiological concepts.

Brazier and Finesinger(61) report on the incidence of waves of various frequencies in the normal EEG (500 subjects). The percent time alpha was found to vary inversely with the frequency. Fifteen to seventeen and one-half per second were uncommon frequencies encountered in only 0.6 percent of the cases. Eighteen per second and faster were found in all cases but no four cycle waves were found. There was no correlation with weight, height, sex or height-weight ratio. A correlation between a threshold for deep reflexes and the amount of alpha activity is reported by Kennard and Willner (62). A high threshold for deep reflexes was associated with high alpha activity whereas a low threshold for deep reflexes was associated with low voltage fast activity and little alpha. This makes one think of Bremer's concept of "tonus cortical"(63). Baudouin and Caussé(64) report that caloric stimulation of the vestibular apparatus does not depress but in some cases increases the alpha activity.

Cohn and Gersh(65) report changes in the EEG during high oxygen convulsions entirely comparable to those seen when convulsions are produced by other means. Because in 59 subjects who collapsed at 18,000 feet only 23 percent had abnormal EEGs on subsequent study, Sugar(66) concludes that collapse at relatively low altitude is due to psychosomatic rather than epileptic disorder. One subject in whom a definite paroxysmal abnormality was found was able subsequently to complete his high altitude training.

According to Brazier, Finesinger and Schwab(67) blood sugar levels around 70 mgs. per 100 cc. of blood are usually associated with slow alpha activity or slowing of the dominant frequency. Blood sugar levels slightly above 130 mg. per 100 cc. of blood do not alter the resting EEG. These authors recommend that glucose be taken thirty minutes before electroencephalography in order to guarantee that the blood sugar level is not too low. The objection may be raised, however, that patients with petit mal are thus protected against showing characteristic wave-and-spike discharges either spontaneously or with hyperventilation. It would seem wise to accept the patient with whatever blood sugar he has and determine to what extent any electroencephalographic abnormality that may appear is the result of a low sugar level. According to Brazier, Finesinger and Schwab(68) 38 percent of normal persons have a build-up after three minutes of hyperventilation. If the blood sugar level is 130 mgs. per 100 cc. only 11 percent have a build-up and if two minutes of hyperventilation is used, only 7 percent have a build-up. The percent time beta activity varies with the sugar level in the second and third minutes of hyperventilation. Heppenstall(69) reports that if high sugar does not prevent big build-up with hyperventilation then the patient can be presumed to be an epileptic; if it does then the patient may be a neurotic. According to Strauss and Wechsler(70) some psychoneurotics show an unsual sensitivity to hyperventilation at normal blood sugar levels.

Greenblatt, Levin and Schegloff(71) studied 39 patients with bromidism. They found that electroencephalographic abnormality was high during the intoxicated state. Progressive clearing of consciousness correlated with electroencephalographic improvement. Diffuse slow waves were found at bromide levels above 200 mgs. per 100 cc. of blood and at these levels the patient was usually confused and dysarthric. Unless the patient was dysarthric there was no very high degree of slowing. At intermediate levels of intoxication mixed fast (12 to 25 per second) and slow (5 to 8 per second) activity were common. The action of bar-

biturates on the cortex has been studied by Brazier and Finesinger(72). They report two stages of response; a fast stage in which high voltage fast activity is found, and a stage in which 3 to 4 per second delta waves predominate. The fast activity appears first in the frontal, then in the parietal, and finally in the occipital leads; it disappears in the reverse order.

Forster and McCarter(73) report that acetylcholine discharges are facilitated if the cortex is strychninized prior to the application of acetylcholine. Such discharges are broken up, however, if strychnine is applied after the acetylcholine. Even with large doses of stilbestrol and progesterone Cress and Greenblatt(74) were unable to obtain modifications of the EEG. The dosage used was sufficient to cause menstruation in their subjects (women in menopause). They conclude that non-endocrine factors should be studied in order to determine the cause of slowing in the EEG during the menstrual cycle and in the late months of pregnancy.

The depression of electrical activity of the brain of a frog depleted of diffusible substances by immersion in distilled water can according to Pick and Miller(75) be restored by intrathecal injection of sodium chloride, provided the process has not gone too far.

Cohn(76) finds that the amplitude difference of alpha activity in different leads with bipolar and monoplar recordings are the same as those found when an artificial dipole is placed in the occipital area of a cadaver. This study appears to be in large part a repetition of the earlier work of Adrian and Matthews(77). It does not explain why the alpha activity in the frontal area tends not only to be lower in amplitude but also to be *slower* in frequency than the occipital alpha, (78, 79) nor why there is commonly a gradient of frequency for alpha activity from all areas toward the right occipital lobe(79).

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BIOCHEMISTRY, ENDOCRINOLOGY AND NEUROPATHOLOGY

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Brain injuries have been studied by many investigators during the past year. Denny-Brown(1) suggested that head injury be defined as injury to the skull which might directly or indirectly cause damage to the brain. Gunshot wounds resulting in penetration of the dura are twice as likely to cause epilepsy as are those which penetrate only the scalp and bone. Friedman and Merritt(2) found that there was a high degree of correlation between pathologic changes (increased spinal fluid pressure and blood in the spinal fluid) and the duration of coma and amnesia following head injuries. Headaches persisting for several months cannot be related directly to these changes.

The categorical pretraumatic personality has little, if any, correlation with the incidence of post-traumatic mental symptoms according to Kozol(3). There was a significant correlation between the incidence of post-traumatic mental symptoms and the existence of complicating psychosocial factors.

Adler(4) found that post-traumatic mental symptoms developed after head injury in 31.5 percent of her patients. Microscopic evidence of neuronal damage was noticed by Tedeschi(5) as early as one to two hours after trauma. Gurdjian(6) studied sections of the brain frozen in situ after brain injury. Contusions showed greatly increased lactic acid and inorganic phosphate and decreased phosphocreatine and adenosine triphosphate, 20 to 85 minutes after injury. Experiments by Duncan, Irvin and Sarnoff(7) indicated that, if alteration in the barrier relations between plasma and cerebrospinal fluid does occur in shock produced by crushing of a limb, it is not sufficient to permit extensive passage of plasma protein into the spinal fluid.

Blalock(8) found that in the state of shock there was usually an increase in the difference between the oxygen content of arterial and that of cerebral venous blood even before the blood pressure began to drop. Carey and collaborators(9) presented a remarkable demonstration of the reaction of motor end plates in muscle to traumatic shock. They found morphologic evidence to support the hypothesis that the end plates elaborate chemical substances and discharge them to the muscle. Bowden and Gutmann (10) have studied denervation and reinnervation of human voluntary muscle. Denervation leads to progressive shrinkage and ultimate destruction of the muscle fibers. Up to 3 years no degeneration and no disruption have been found. Repair of nerves 3 years or more after injury is unlikely to be followed by any useful functional recovery.

Diethelm, Doty and Milhorat(11) considered the possibility of establishing a relationship between substances in the blood having adrenergic and cholinergic properties and specific emotional responses. The results of such experiments are frequently difficult to analyze because one may not be dealing with merely the one emotion which dominates the psychologic and psychopathologic picture. Anxiety, resentment and anger are accompanied with definite adrenergic factors; tension, and possibly fear, with cholinergic factors. There does not seem to be an essential difference between normal and psychopathologic emotions except in the intensity of the adrenergic and cholinergic response.

There is a growing tendency to think of certain obscure brain diseases in terms of vascular injuries due to anaphylaxis. This is true not only of periarteritis nodosa but also of the demyelinizing diseases. Rich(12) found lesions characteristic of periarteritis nodosa in the viscera of five patients who, shortly before death had hypersensitive reactions following therapeutic injections of foreign serum. A similar picture may follow sulfonamide therapy. Rich and Gregory(13) produced typical diffuse periarteritis nodosa, experimentally, by establishing in rabbits a condition analogous to serum sickness in man. Scheinker(14) discussed the histopathologic changes in the brain in cases of thrombo-angiitis obliterans and periarteritis nodosa. Small intramural hemorrhages in thrombo-angiitis obliterans seem to denote an early vascular alteration. The early lesions may be related to angiospasm and vasoparalysis and therefore reversible. Malamud(15) described the histopathologic changes in the brain of a child of 5 with decerebrate rigidity and extensive encephalomalacia due to periarteritis nodosa. Ferraro(16 and 17) has marshalled evidence of the allergic origin of the demyelinizing diseases including multiple sclerosis and the demyelinizing encephalomyelitides. He reported vascular changes in the brain under conditions of experimental anaphylaxis. They followed repeated subcutaneous injections of suspensions or extracts of brain. Study of the blood vessel walls revealed various degrees of necrosis. There was a tendency to thrombus formation. Perivascular infiltration and hemorrhage were common. Definite thickening of the adventitia with marked proliferation of the intima led to partial occlusion of the vessel. Waggoner and Malamud(18) described abnormalities which they considered due to the combined effect of psychic stress and vulnerable vasomotor system. Clinically

there were rapidly fluctuating psychic, neurologic and vasomotor reactions. Pathologic studies revealed complex changes referable to the meningovascular system of the brain. These included areas of focal myelin destruction.

Cerebral involvement in blood diseases and in general systemic diseases has been the subject of several papers. Ferraro, Arieti and English(19) found marked changes in the brains of 7 patients with pernicious anemia. Six of these patients showed evidence of psychosis. The nerve cells presented severe changes. The small blood vessels appeared to be increased in number and presented a mild endarteritis in all cases. In at least two cases, the vascular changes were found with especial intensity in the regions involved in Wernicke's encephalopathy. Chronic subdural hematoma may develop in patients with polycythemia according to Drew and Grant(20). Expanding intracranial lesions of this type may produce papilledema of high degree. Carelli and Cangelosi(21) described bilateral optic atrophy as a sequela to thrombocytopenic purpura. Baker and Watson(22) studied the brain of a patient with porphyria. Neuronal and myelin sheath alterations were observed throughout the brain and spinal cord in addition to characteristic peripheral nerve changes. Roth(23) thinks that psychoneurosis plays an important part in the psychogenesis of this disease. Rigdon(24) suggested that the pathologic lesions occurring in the brain in malaria are identical with those described in a variety of pathologic conditions in which anoxia is considered to be the underlying process. Harvey(25) reported symptoms of peripheral neuritis associated with malaria. Uremia occasionally results in symptoms that may cover the entire field of neuropsychiatric symptomatology (Knutson and Baker, 26). Ferguson and Barr(27) found spontaneous glycosuria in 16 of 72 consecutive patients with meningitis. Coma with glycosuria at the onset of meningitis may lead to a faulty diagnosis of diabetic ketosis. Rickles(28) reported 3 cases of pancreatic disease in which the first symptoms were abdominal pain attended by anxiety, insomnia and depression.

Three interesting articles deal with tuberous sclerosis. Apley(29) described this disease in a father and child. In the father, all the classical features of the syndrome were present, opacities in the skull, adenoma sebaceum, a phacoma, epileptiform fits and mental retardation. At the age of 3½ years the child was mentally retarded and suffered from fits. Two years later, his mental condition had deteriorated greatly, a few skin lesions had appeared and opacities had become visible in his skull. Glicklich and collaborators(30) also reported the finding of a phacoma of the optic disc in a patient with tuberous sclerosis. Dickerson(31) studied the characteristic roentgenographic changes associated with this disease. Patchy zones of increased density occur in the calvarium. In addition to the hyperostotic changes, the calvarium is diminished in thickness and the normal marrow is replaced by fat, rendering the involved areas more translucent. These islands overlie tuberous nodules in the cerebral cortex. The bony changes usually appear at puberty.

Nielson(32) described a new syndrome of neuromuscular exhaustion followed by atrophy and fascicular twitching requiring months for recovery. During a period of euphoria with oblivion of fatigue a person continues to work until he suddenly develops complete neuromuscular exhaustion approaching paralysis. Psychomotor restlessness continues, pains and tenderness are prominent and the muscles become flabby while they twitch and atrophy. Paralysis supervenes with great loss of body weight. Recovery is very slow and in most severe cases residuals remain. Exacerbation may appear after relatively slight exertion. The patients tend to ignore their disability.

Redisch and Pelzer(33) found that during migraine attacks there was a tendency to indistinctness or blurring of the capillary outlines of the body surface. The indistinctness tended to increase with nausea. Schulack and Kibbe(34) described a case of herpes zoster auricularis associated with facial palsy and hypoacusis. He also complained of vertigo and tinnitus. This rare syndrome has previously been described by Ramsay Hunt. Krumholtz(35) states that encephalitis may be a complication of herpes zoster. In the case which he studied there

were no infiltrative changes above the medulla oblongata and he suggested that the toxic encephalopathy affecting the brain proper may have been an allergic response to the virus of herpes zoster. Lindsay(36) found degeneration of the cells in the spiral ganglion in the case of Ménière's disease. A fall resulting in subdural hematoma and death produced other complicating pathologic changes. Davison and Delmuth(37) presented 9 cases of pathologic sleep in man associated with lesions of the cortex. In none was there invasion of the hypothalamus. The authors are of the opinion that some fibers for the control of sleep originate in the cerebral cortex, especially the hippocampal, cingular, frontal, premotor and temporal convolutions.

Research on poliomyelitis has continued during the war period. Bodian and Howe (38) found that the amount of pathologic involvement of the nervous system in cases of experimental non-paralytic poliomyelitis was variable. It varied from arrest of the process near the portal of entry to severe and extensive involvement of all the susceptible centers along the cerebrospinal axis. They(39) demonstrated poliomyelitis virus in pharyngeal swabs taken from patients ill with the disease in paralytic or non-paralytic form during the first 3 days of illness in 43 percent of 23 cases. Rinehart(40) presented evidence that depletion of the chloride concentration of the body may predispose to the development of symptoms of poliomyelitis. A group of cases of early poliomyelitis were studied with regard to chloride concentration of the whole blood and spinal fluid, packed volume of red blood cells and urinary output of chlorides. It was found that depletion of chlorides was constant.

Nelson and Duncan(41) state that in 10 cases of acute syphilitic meningitis treated with penicillin the immediate results were excellent both from clinical and laboratory standpoints. Kesert and Grossman(42) used intraspinal injections of thiamine chloride in the treatment of 8 cases of tabes dorsalis suffering from gastric or tabetic crises. They report partial to complete relief from the pains for several weeks or months. Spitz, Pollak and Angrist(43) demonstrated that subdural suppuration appears as a rare complication of purulent leptomeningitis. Several possible mechanisms of the spread of infection from the subarachnoid to the subdural space exist.

Kennard(44) found that in the cat cortico-autonomic representation lies entirely or chiefly in the frontal lobes. Bilateral removal of this area is followed by all the symptoms of sham rage which appear in preparations which are totally decorticate. The orbital surface of the frontal pole is related to vagal function. Removal of this region bilaterally causes panting, increase in heart rate and increased production of adrenalin. The diminution of sham rage phenomena which occurs in chronic preparations is a manifestation of homeostasis brought about by adjustment of the remaining autonomic system.

Wartenberg(45) published an important monograph called: "The Examination of Reflexes: A Simplification." Its purpose is to simplify the technique and interpretation of reflexes. Gordon(46) reported that patients with a unilateral Parkinsonian syndrome show hypersensitivity to vibration on the involved side. Sunderland(47) presented a detailed anatomic study of the source, site of origin, course and distribution of the nutrient vessels to the median, ulnar and radial nerves in 37 adult arms. O. J. Pollak(48) found that almost one-fourth of 2,000 patients who came to necropsy in a mental hospital were classified clinically as psychoses with cerebral arteriosclerosis. In only a fourth of these was death due primarily to arteriosclerosis.

Rennie(49) found that the administration of insulin in subcoma doses provides an effective method of sedation. Its specific action seems to be in alleviation of anxiety. The method is entirely safe and the results are said to be far superior to those achieved by barbiturate sedation.

Himwich and collaborators(50) determined arteriovenous oxygen differences in 33 patients with depressive psychoses. The average value, 6.5 volumes percent, was within the normal limits. Wikoff, Martin and Marvin(51) found that the average bromine content of the blood of 172 patients with dementia præcox was 0.555 mgm of bromine per hundred cubic centimeters of

blood. The values for 80.2 per cent of the patients examined varied from the average by less than 0.2 mgm. The average value for the patients with dementia præcox was lower than the average obtained by the same method for normal persons residing in the same city. De Jong and St. John(52) performed the cephalin-cholesterol flocculation blood test on 147 schizophrenic and 116 control cases. Male and female catatonic schizophrenics showed a positive reaction in 46.8 percent of the cases. Female non-catatonic schizophrenics showed 44.6 percent positivity against 15.2 percent of the male patients of the same group. The control group showed 6.9 percent positivity.

Billig and Hesser(53) studied the blood histamine level in 6 schizophrenic patients during insulin treatment. There was a rapid increase in histamine during the third hour after insulin administration, the average increase being 68.4 percent. Following terminating of the comas the blood histamine dropped sharply. Cicardo(54) found that during attacks of experimental epilepsy in the dog, produced by electrical stimulation or convulsive drugs, there was a loss of potassium from the brain. Spiegel-Adolf (55) and his collaborators made spectrophotometric studies of the cerebrospinal fluids of dogs subjected to convulsions. There was band absorption between wave length 2,550 and 2,950 A°. Since an abnormal protein content could be excluded, and barbiturates had not been administered to the dogs, the absorption band probably is due to abnormal amounts of nucleic acids or their constituents, belonging to the pyrimidine-purine group. The findings suggest a breakdown of nuclear substances under the influence of convulsions.

Cumings(56) studied the chemistry of 52 tumors of the brain and spinal cord. Of the tumors, medulloblastoma had the highest water content and spinal chordoma the least. An elevated phosphate content of tumors appeared to be related to a tendency to degenerate.

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FAMILY CARE AND OUT-PATIENT MENTAL CLINICS

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Notwithstanding the lack of psychiatric and social service in state hospitals, family care of mental patients made considerable progress during the past year. The circulation of the book by Hester B. Crutcher, "Foster Home Care for Mental Patients" (1), among state hospitals for the mentally ill and state schools for the mentally defective has stimulated interest in family placement of patients and in some states has been a factor in the introduction and expansion of this form of treatment. For example, in Ohio, the State Legislature appropriated $25,000 to initiate a family care program, and such program has been organized by the Division of Mental Hygiene in the Ohio Department of Public Welfare(2). In California, a bill was passed providing for family care for the mentally defective and $207,000 was appropriated for such care during the next two years. An assistant medical director has been appointed to have charge of all family care and also of out-patient clinics(3). In Illinois, the State Department of Welfare in the fall of 1941 began using an old statute, which permitted family care of mental patients. In the fiscal year ended June 30, 1943, 312 patients were placed in families; in 1944, the number was increased to 327, and in 1945, to 420(4). In Rhode Island, the single state hospital had on January 1, 1945, 189 patients in family care. By October 31, 1945, the number had increased to 228(5). In Maryland, in spite of handicaps, two of the state hospitals had been keeping about 5 percent of the resident population in family care. Dr. Preston reports that:

> As to actual progress during 1945, I believe that the outstanding achievement has been the demonstration to hospital physicians that many patients who a few years ago would have been considered much too sick to leave the hospital can be moved outside and can finish their recovery more rapidly than they would within the hospital(6).

In New York State, strenuous efforts have been made to maintain the family care program on a therapeutic basis. The number of patients placed out has slightly declined, but at the end of October, there were about 1,700 patients in family care from the institutions maintained by the Department of Mental Hygiene. Massachusetts also reports a decline in family care cases but the Commissioner of Mental Health hopes to regain lost ground during the coming year(7). So far as learned, no articles on family care have appeared in psychiatric journals during the past year except one on "The History of Family Care in America"(8) prepared by Dr. Horatio M. Pollock, and published in the AMERICAN JOURNAL OF PSYCHIATRY in November 1945. Dr. Pollock also prepared an article on the "Requisites for the Extension of Family Care"(9) to be read at the annual meeting of the American Association on Mental Deficiency, November 29, 1945.

No outstanding developments in out-patient clinic work have occurred during the year. In some states provisions for added clinic service have been made and the Veterans Administration has authorized the setting up of out-patient clinics in some 30 centers and has established a satisfactory scale of salaries and qualifications. The reduced force of physicians and social workers in state hospitals naturally cuts down out-patient work but in some states the service was maintained at the prewar level(10).

In the State of Delaware a new law was enacted for the establishment of traveling convalescent clinics for the psychiatric and neurological care of veterans of World War II. Dr. M. A. Tarumianz has been appointed director of such convalescent clinics(11).

In Part I, of the Psychiatric Quarterly Supplement for 1945, Dr. Donald W. Cohen and Margaret L. Carper surveyed the child guidance cases examined in the New York State child guidance clinics during the period from July 1, 1938 to June 30, 1939. As five years had elapsed since the cases were first examined, the results of the survey are of great significance. The present adjustment status of 1,859 cases was obtained. Of these, 43.3 percent have made a satisfactory adjustment; 8 percent are much improved, 27.3 percent are improved and 20.4 percent

are unimproved. The best results were obtained in the social problems group, the primary behavior problems group and the educational disability group. The poorest results were found in the psychopathic personality group. The child guidance clinic policy of the Department has been changed and more intensive study and treatment with fewer and more suitable cases; has been substituted for previous procedures which were largely diagnostic(12).

The extension of psychiatric out-patient clinic work to include chronic alcoholics was urged in an article by Dr. Robert V. Selinger, entitled "Is a Diagnostic Clinic for Alcoholics a Necessary Part of a Sound Community Program"?(13) The author describes the work of the Henry Phipps Psychiatric Out-patient Department in dealing with alcoholic cases, and states that the functions of an alcoholic diagnostic clinic are education, understanding, examination, diagnosis, placement and treatment. With proper treatment and supervision, he believes that many chronic alcoholics may be permanently cured.

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PSYCHIATRIC SOCIAL WORK

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The year has been one of great activity in the fields of military, civilian, rehabilitation and industrial social work developments. Largely due to the influence of Elizabeth Ross, secretary to the War Office of Psychiatric Social Work, there was created in 1945 the officers' MOS 3605. Thus, belatedly at the end of the war psychiatric social work was recognized as a specialty for which commissions could be granted and a branch was created in the Division of the Consultants in Neuropsychiatry in the Surgeon General's Office. In the armed services social workers had long since proven their value to the medical personnel. A number of worthwhile articles describing their function and activities appeared. The official professional statement of duties, standards and working relations were defined by the Army in TB Med. 154 and the consultation service was defined in TB Med. 156. As described by Robbins and Rice(1), the social worker proved of value in dealing with the individual soldier and was able to utilize the studies of the clinical team to help resolve the problems of dischargees. Outstanding work dealing with individual soldiers' problems was described by Greving and Rockmore(2). Additional experiences in intensive case work in the Army have been described by several writers(3, 4, 5, 6, 7, 8, 9).

With large numbers of dischargees returning to civilian life the need for rehabilitation and guidance services became acute. The social worker played a significant rôle in the development of veterans service centers and psychiatric rehabilitation clinics. They have proven their effectiveness in the therapeutic team of rehabilitation clinics and in interviewing. Among many, an active

center was the one set up in Bridgeport, Connecticut, described by Agnes Meyer(10). New York City early organized a center, under the supervision of Ethel Ginsburg (11), which has done outstanding work and has stimulated similar developments elsewhere. The multiple problems encountered by discharged service men upon return to civilian life have been described(12, 13, 14, 15, 16, 17, 18). Cynthia Nathan has described the psychological adjustment of the physically handicapped(19, 20, 21, 22). The establishment of a division on rehabilitation of the National Committee for Mental Hygiene led to the appointment of Luther E. Woodward as full-time field consultant. His activities with community groups, state organizations, industry, etc., have been described in a series of publications(23, 24, 25, 26).

A significant development has been the increasing interest by industrial groups in the employment of emotionally handicapped individuals and in the setting up of appropriate counseling programs. In these developments social workers have played a considerable rôle. Three monographs, all of high standard, have emerged relating to counseling programs(27, 28, 29). Late in 1945 a book "Jobs and the Man," aimed at giving understanding of emotionally handicapped workers to foremen, shop stewards and supervisors, was published(30).

The shortage of psychiatric social workers continues particularly in the Red Cross and Veterans Administration. Scholarships were set up for the Red Cross to encourage training in social work. The Veterans Administration has raised salaries for psychiatric social workers and the social workers themselves have organized to improve their own standards of training and performance.

Within the Army and in certain civilian units the social worker has been intrusted with some responsibility for therapy particularly in the direction of group psychotherapy discussions. Social workers, like other professional persons faced with emergency needs, have worked toward the development of brief techniques and some workers have succeeded in developing quicker methods to replace the traditionally longer case records. There is urgent need for increased training opportunities for psychiatric social workers and a real opportunity to enlist for training many individuals coming out of the services who have had practical experience in case work and are desirous of acquiring additional professional competence.

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PSYCHIATRIC NURSING

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Psychiatric nursing shows progress in some respects during the year 1945. Though the year started in nearly every mental hospital with depleted personnel on duty, the number decreased during the time that drafting nurses for the armed forces was under consideration.

Since the cessation of active warfare the loss of personnel has been checked and since V-J day there appears to be a slight increase.

In some hospitals and clinics heroic work was done by those who continued to care for patients despite depleted staffs, restrictions in supplies and nursing equipment. Their courage is a kind of progress not easily evaluated. Other indications of progress include the following:

Army nurses show increased interest in psychiatry. Army nurse counselors are assigned to separation centers through which nurses will pass. They have information to present to nurses returning to civilian life, about employment and educational opportunities in psychiatric nursing. Colonel Florence A. Blanchfield, chief nurse of the Army Nurse Corps, has been most cooperative with efforts to attract more nurses to this type of nursing in which there is great need.

Public health nurses indicate increasing and continuing interest in the nursing aspects of mental hygiene and psychiatry. Three districts requested a speaker from the mental hygiene division of the United States Public Health Service to participate in their annual programs. In the hospitals division of public health nursing and the division of tuberculosis control members of the mental hygiene division have participated in nurse conferences.

The number of inquiries from nurses in military and civilian service concerning postgraduate courses in psychiatry has increased since V-J Day.

The division of nurse education of the United States Public Health Service requests from time to time survey and analysis of clinical facilities in mental hospitals for student nurses to acquire experience in psychiatry. Some senior nurse cadets have elected to serve their final term in mental hospitals and a few have continued on after graduation.

The number of general hospitals seeking experience by affiliation with a mental hospital continues to exceed the available opportunities. A study of the 1107 nursing schools participating in the nurse cadet corps program (*U. S. P. H. Report*, Oct. 19, 1945, p. 1236, Claire H. Favreau) reveals that 48% provide psychiatric experience for all their students and an additional 11% provide it for some students. In several states all students in approved nursing schools have

psychiatric nursing as part of their basic experience.

Nurses returning from military service are reported, in a number of cases, to have resumed their former positions in mental hospitals. As terminal leaves end and when the holidays are over more will be available. Men attendants, wearing the insigne that indicates they are discharged from military service have been seen on duty in some hospitals. This does not mean that all hospital vacancies are filled but there is slight improvement.

At one of the universities giving clinical experience in psychiatric nursing in conjunction with the postgraduate course, the number of nurses enrolling for postgraduate study increases with each session. One nurse upon completion of her course took a position in a veterans hospital caring for mental patients. One, a man, is employed at a government hospital for mental patients. Several nurses are attending the university on leave from positions to which they will return. In the group enrolled at present two are from U. S. Public Health hospitals. Upon completion of their course they will return to the hospitals from which they came, to establish educational programs for the nursing staff and attendants. In time uniformly good standards of care should be well understood by all employees. Other nurses will be selected to take postgraduate courses, replacing those returning.

General hospitals in various parts of the country indicate interest in psychosomatic symptoms of patients suffering from medical and surgical illness by providing experience in psychiatry for nurses at the university. Upon completion of the course the nurse returns to take charge of a psychiatric ward in the general hospital; in other situations the nurse applies and teaches the principles of psychiatric nursing in general hospital wards.

Progress is indicated in the increasing interest given psychiatric nursing in professional literature. *The American Journal for Nursing* continues to stimulate interest in psychiatric nursing by articles and editorial comments in nearly every number. The November issue contains the announcement of Miss Edith Patton's appointment to the editorial staff of the Journal. Miss Patton was selected because of her deep interest and varied experience in psychiatry, in addition to her facility in writing. The *Modern Hospital* (May–Oct. 1945) conducted a competition on "How to Improve the Care of Patients in Mental Hospitals." The judges reported that the number of entries far exceeded their expectations. Physicians, nurses, social workers, attendants, patients and their relatives were among the competitors. Generally the quality of the essays was high.

Mrs. Laura Fitzsimmons, psychiatric nursing consultant of the American Psychiatric Association, completed "A Manual for Training Attendants in Mental Hospitals." It is a guide for instructors teaching attendants in mental hospitals. "The Attendants' Guide" (*The Commonwealth Fund,* 1945) was written by Edith M. Stern in collaboration with Mary E. Corcoran. Both have been well received by those they are intended to serve.

Though restrictions on travel curtailed annual conventions, the psychiatric nursing committee of the National League of Nursing Education held three meetings. Elizabeth Bixler was chairman of the committee until her appointment as Dean of Nursing at Yale University. Upon her resignation of that office she was succeeded by Mrs. Laura Fitzsimmons.

ADMINISTRATIVE, FORENSIC AND MILITARY PSYCHIATRY

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Administrative Psychiatry

In view of the large number of mental hospitals it is not strange that we continue to find a substantial amount of space in various journals devoted to problems of administration. The literature of this phase for 1945 covers a variety of topics—psychiatry in general hospitals, psychiatric nursing,

chaplain service, family care, library activities, and so on. Space permits mention of only a few articles.

Perhaps the most important is the report entitled "The Psychiatric Services" published in the *Lancet* for June 16, 1945 (p. 763). This report should have had far wider circulation in this country than has been the case. Most significant is the fact that the report is a joint product of the Royal College of Physicians, the British Medical Association group of practitioners of "psychological medicine," and the Royal Medico-Psychological Association. In its advocacy of mental hygiene services and of a closer integration of psychiatry with general medicine the report plots a course for psychiatry which might be followed with profit here.

The report of the Committee on Standards and Policies of the Association on "Standards for Psychiatric Hospitals and Out-Patient Clinics" appeared in the JOURNAL for September 1945 (**102**: 264), and should be familiar to every psychiatrist and to those persons in government who have responsibility for the care of the mentally ill.

Ernest E. Bruder (*Mod. Hosp.* **65**: 67, Par. 1, July 1945) points out the possible contribution of the trained full time chaplain to the psychiatric hospital.

Laura Fitzsimmons (*Am. J. Psychiat.*, **101**: 472) reports on a survey of postgraduate courses in psychiatric nursing, and emphasizes the importance of such courses for the problems of the post war era.

Horatio M. Pollock, the dean of psychiatric statisticians, contributes a valuable article (*Am. J. Psychiat.*, **102**: 1) on the "Development of Statistics of Mental Disease in the United States during the Past Century." He concludes that "it is probable that the various factors relating to mental disease have been more completely studied than those relating to any form of physical disease."

An encouraging trend is noted in the increased interest being displayed in the care of the mentally ill by the journals devoted primarily to general hospital problems. This augurs well for a closer relationship of psychiatry with the general hospital and the internist.

FORENSIC PSYCHIATRY AND LEGISLATION

Although these reviews are devoted primarily to periodical literature, there are occasions when a book should be mentioned. In the field of forensic psychiatry one of the most significant events during the year was the appearance of a volume entitled "Mental Abnormality and Crime." The book consists of chapters by such prominent English psychiatrists as Rees, Glover, E. Miller, East, Henderson, and the late R. D. Gillespie. The most encouraging feature is not the intrinsic merit of the chapters, good as they are—the book appears under the ægis of the Cambridge University Faculty of Law, with an introductory essay which indicates a deep appreciation of the relationship of psychiatry to the criminal law.

A somewhat different viewpoint is expressed by Prof. Jerome Hall (*Columbia Law Review*, **45**: 677) in an article entitled "Mental Disease and Criminal Responsibility," in which the author "views with alarm" the attitudes of White, Zilboorg and Overholser regarding the place of psychiatry in the administration of the criminal law.

On a related topic, Prof. E. J. Baird (*Quart. J. Studies on Alc.*, **5**: 628) discusses "Science and the Legal Responsibility of the Drunkard," from the point of view of the lawyer.

Dr. F. O. Butler (*Am. J. Ment. Def.*, **49**: 508) presents the results of 25 years of sterilization of mental defectives in California (a total of 4310 cases at Sonoma State Home). He asserts that the experience "has confirmed my faith in the universal need of a law permitting sterilization," and cites figures as to discharges, length of stay, and success of the dischargees.

For those hospital administrators who suffer from the plague of habeas corpus proceedings, the article by Drs. Worthing and Bigelow (*Psychiat. Quart.*, **18**: 582) offers a ray of hope. Through an arrangement with the local judges, hearings on petitions for writs of habeas corpus are heard at the Pilgrim State Hospital instead of in court. The advantages are obvious.

Finally, Dr. Warren Stearns (*Am. J. Psychiat.*, **101**: 573) presents an interesting essay on Isaac Ray, one of the Original Thirteen and the author of the first systematic

work on Forensic Psychiatry in the English language.

In the field of legislation we find that most of the state legislatures were in session in 1945, with a corresponding grist of laws on various topics. A number of bills were enacted which deal with the care of the mentally ill.

Louisiana enacted a Mental Health Act (c. 303, Law of 1944), consolidating and revising the law relating to the care of the mentally ill. *Inter alia* provision is made for psychopathic departments in state general hospitals. By another bill, which appears not to be a step forward (c. 261, Laws of 1944) the court is directed to appoint two "disinterested physicians" (one of them the coroner) instead of two "qualified experts in mental diseases," to examine the defendant in criminal cases if doubt arises as to his mental condition. Wisconsin (c. 249, Acts of 1945) amends the definition of "handicapped persons" by including those suffering from mental handicaps (for purposes of vocational rehabilitation). New Jersey (c. 52, Acts of 1944) authorizes an osteopathic physician believed to practice medicine to certify patients for commitment.

The other enactments deal largely with problems of guardianship and support. No legislation concerning sterilization appears to have been considered.

Military Psychiatry

With the simultaneous ending of the war and the lifting of "security" restrictions, the number of articles on various phases of military psychiatry is showing a tendency to increase. The list of references so far accumulated by your reviewer numbers 300, with the calendar year not yet complete.

Several symposia have appeared in the literature—a number of the *Journal of Clinical Psychology* (April 1945, vol. 1, no. 2), the *Bulletin of the Menninger Clinic* (Sept. 1944, vol. 8, no. 5) and *Diseases of the Nervous System* (May 1945, vol. 6, no. 5) for example.

Lebensohn(1) reports on psychoses in naval officers, emphasizing that psychiatric selection of officers is even more important than of enlisted men, yet is practically nonexistent.

Grinker and Spiegel(2) discuss war neuroses in flying personnel, and Grinker(3) emphasizes the relation of fatigue to war neuroses. Minski(4) presents the English experience in the treatment of war neuroses. He stresses the importance of the man's having a suitable job before he leaves the hospital. Raines and Kolb(5) discuss treatment, emphasizing abreaction and group therapy. Rome(6) deals with military group psychotherapy, a field in which much progress has been made recently.

To emphasize the fact that not all mental difficulties are experienced by the men themselves, Kasanin(7) and Lawrence(8) deal with the psychiatric problems of servicemen's wives. On another related front, Stevens(9) presents some interesting facts about psychoses among women government workers in wartime.

Rowntree, McGill and Hellman(10) discuss mental and personality disorders in selective service registrants; those disorders accounted for 17.8% of all rejections. Rowntree in another article(11) discusses psychosomatic disorders in registrants. Increases of 50% or more have been noted in asthma, peptic ulcer and other gastrointestinal syndromes and effort syndrome during the war.

Hadley presents(12) a careful and thorough ecological study of Washington registrants; among other items, it indicates a relationship between density of population and rejection rates.

The largest number of cases reported so far is found in an article by Lt. Col. Harold Palmer of the R. A. M. C.(13). He gives the results of an experience covering 12,000 cases of psychiatric casualties dealt with at the front. "Panic reactions" constituted 65% of his material, the balance being termed by him "anguish reactions." The article should be read in toto.

Several articles deal with the dischargee and his problems of readjustment to civilian life. Col. Robert Owens of the Selective Service System(14) raises some pertinent questions about the need of coordinated community facilities for the benefit of the returning veteran. Brill, Tate and Menninger(15, 16) present two follow-up studies of men discharged from army service because of psychoneuroses. Their findings indicate a

trend toward continuation of symptoms on return to civilian life. Pratt(17) reports a similar study, with similar findings. Rennie(18) describes the operation of the Rehabilitation Clinic of the New York Hospital; he finds a prompt response to relatively brief therapy in the patients studied.

Finally, because of its implications for the future, mention should be made of Levy's report(19) on the "War and Family Life."

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PSYCHIATRIC EDUCATION

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The lack of sufficient psychiatric personnel as demonstrated by the war raises the question of the adequacy of psychiatric teaching. What has 20 years of effort produced in this field? Ebaugh(3) made medical schools conscious of their responsibility to consider the person as a whole in medical education. In previous reports(4, 5) we have emphasized this need, and have outlined the methods of teaching and stressed the shortage of psychiatric personnel. One sees encouragement in the writings of Rennie(10), Romano(11), Potter(9), Menninger(8), Knight(7), Worthington(14), Daniels(2) and Kemble(6), as they add their voices to the demand for a greater emphasis on psychiatry in medical curricula.

Perhaps, as Rennie(10) has stated, psychiatric education has failed in the past because the focus was wrong and the methods faulty. The psychiatrist had a tendency to isolate himself from the stream of general medicine and to use an incomprehensible language, or so it seemed to others. Under the new plan of training, the psychiatrist and internist will work together, and each will of necessity use words suitable to his special technique without thereby becoming a semantic tyrant. In undergraduate teaching the student should at least begin to recognize and deal with the personality components of every patient he sees. He should gain his first introduction to human emotional problems on the medical, surgical and pediatric wards and not on the wards of a state hospital. Therapy must be based upon sound principles of psychodynamic understanding, thus preparing the student as a general practitioner in his management of psychoneurotic and psychosomatic conditions, a group which constitutes 50 percent of his practice.

Romano(11) believes that undergraduate training in psychiatry should deal with the physiological and psychological concomitants of emotional experiences such as grief, rage, resentment, fear and anxiety, and including an awareness on the part of each student of his own emotional biases and prejudices. These studies are supplemented by repetitive clinical experience with problems which the general practitioner commonly meets. Attention is then directed to the somatic expression of emotional illness and its concomitants. Romano attempts to include in the four years of undergraduate psychiatric teaching a knowledge of the basic concepts of human nature; of the normal emotional experiences of sick people; of the etiological rôle of disturbed human relationships; of the classification of diagnostic syndromes; and the methods of psychotherapy which the student may operate efficiently and safely.

Romano's criteria of a teacher: he should be a capable psychiatrist, probably analyzed, who has a working knowledge of the vary-

ing schools of thought and who has a genuine understanding of conscious and unconscious motivation; who is aware of the fundamental problems of medicine, neurology and pediatrics; who is reasonably equipped with the methodology of modern physiology and modern psychology; who has some idea of the methods, goals and scope of social work in the community; who is a good teacher able to communicate his ideas and experiences to students clearly and simply; and who is able to stimulate creative thinking in the students.

The necessity for broadening psychiatry beyond its traditional rôle of dealing only with the "insane" is expressed by Potter(9) who stresses the need to train the student to understand and to recognize the emotional and environmental factors that often lead to physical and mental ill health, personal inefficiency and interpersonal conflicts. He believes that the subject matter should be continually oriented to the general practice of medicine, emphasizing the fact that the mental attitudes of sick people and their bodily responses to emotional disturbances are matters of extreme importance in the everyday practice of medicine.

The pre-war psychiatric personnel, some poorly trained, could not meet adequately the demands made by the military services. Accordingly, the armed services provided a brief orientation course in psychiatry for about 2,500 young medical officers. According to Rennie(10), the armed services had approximately 3,000 "psychiatrists"; of these, 1,700 were in the army; 500 in the navy; 210 in the air force; 475 in the Veterans Administration; and 15 in the Public Health Service. Probably few of these physicians can be considered competently trained psychiatrists. A considerable number desire further training and the questions arise where this training may be obtained and what should be its content. Rennie has stated that there are only 632 residencies for training in 105 approved centers, and of these less than 300 become available each year. He has suggested that the 32 neuropsychiatric hospitals of the Veterans Administration would offer ideal opportunities for training if they were converted into modern teaching and research centers. He further suggests that all new veterans' hospitals should be affiliated with teaching centers, and that the main focus must be on therapy and research rather than on the administration of compensation.

Menninger(8) discusses the objectives, methods and content of graduate psychiatric training. The *objectives* are to equip the graduate with a body of knowledge, certain techniques or skills, and a spirit or attitude characteristic of psychiatry. The *methods* should include assigned reading, work with selected cases, group and individual conferences, seminars and didactic lectures, and the formulation of an autobiography. The *content* should include the history of psychiatry; presentation of psychiatric symptoms and syndromes; orientation in psychotherapy; counseling and working with general practitioners, social agencies, industrial representatives, teachers, and workers in the allied fields of anthropology, education, religion, criminology and public health.

Worthington(14) has defined instruction in psychiatry for residents as follows: Orientation to the organization in which he is to work, and orientation in the field of psychiatry." The former is dependant upon the type of hospital selected for training. The latter is concerned with lectures and seminars, general and psychiatric reading, the admission and management of patients, out patient work, and finally instruction in psychotherapy.

Although residencies in psychiatry for the most part are poorly supervised by hospital administrators and vaguely and unsatisfactorily accredited, this is not true of the six training institutes in psychoanalysis officially recognized by the American Psychoanalytic Association. This training equips the physician with a special psychotherapeutic skill, which according to Knight(7).

> . . . . means the attempt, by verbal intercommunication between patient and therapist, to influence favorably the patient's mental health—to relieve his anxiety, to bring about more constructive uses of his energies, to improve the quality of his relationship with others, to promote the integration of conflicting feelings and tendencies in his personality, to increase his powers of adaptation to his environment and its stresses, to cause him to know and understand himself better. In order for a therapist to achieve these aims with a patient he must understand what constitutes emotional health, what internal and external (cultural, environmental) conflicts threaten it, and what any particular patient is reacting to and expressing in symptom formation,

maladaptive behavior or attacks of anxiety. The therapist must be able to convey usable insight to the patient, and he cannot do this unless he himself has insight. Without insight, the therapist is blind and is leading the blind. Yet much of what has passed for psychotherapy (under various names) is just such a blind attempt to reassure, exhort, persuade, intimidate, ridicule or otherwise influence the patient to forget his troubles without any but the haziest awareness of what is really disturbing him.

Kemble(6) comments that the medical student still breaths in an atmosphere of organic pathology, few internships offer any practical experience in psychiatry, and the majority of residencies provide a circumscribed experience with the extreme types of mental illness. With such training methods the psychiatrist has a narrow horizon and is too specialized. Kemble has suggested that a school (or several schools) of psychiatry should be established in a metropolitan area where clinical material, social agencies and qualified authorities and teachers in the allied fields are available. The curriculum would include anthropology, psychology and political science. To be of value these courses should take an academic year and should not be encumbered with routine clinical duties.

The responsibility of medical education in providing trained men to treat the psychiatrically disabled veteran was discussed by a committee of leading psychiatrists and internists at Hershey, Pennsylvania, February 1-3, 1945, and their report was published by the National Committee for Mental Hygiene(1). The conference declared:

> The future of comprehensive medical care, and with it the continued care of psychoneurotic veterans, some of whom will be in need of treatment for many years, depends, therefore, on the development of medical education at two points: first, the training of the general practitioner, and internist in what is called "psychiatry as a basic medical science"; and second, the training of the psychiatrist as a specialist.

The conference outlined the following principles relative to psychiatry as a basic medical science: (1) Physicians should be trained in the recognition and treatment of the psychological as well as the organic aspects of disease. (2) The teaching of psychiatry as a basic medical science should begin early enough in the medical curriculum not to be hampered by the stereotyped ways of thinking easily acquired by the student. (3) Medical students should be taught to know "as much about human nature, let us say, as the corner grocer knows—how people behave, what grief means, what anger means, and a few of the somatic representations." (4) Medical students should have the experience of following a difficult psychiatric problem through to some kind of termination; they should follow it long enough to know what can and what cannot be done, and to have a sense of the difficulties and potentialities of the problems in the field. (5) A well-trained psychiatrist and internist on all hospital services is essential in training interns and residents in psychosomatic medicine.

A special committee(1) on rehabilitation of this conference expressed the opinion that the veterans suffering from psychoneuroses should be treated by the general practitioner, trained to manage the minor neuropsychiatric conditions. However, this physician should recognize those cases that he is unable or should not attempt to treat. As guide posts in this additional training of the general practitioner the committee suggest: (1) Psychiatry should be taken to the man who will not or cannot come to training centers. It is recommended that key men develop a "circuit rider's" program, utilizing various organizations and techniques to accomplish the job. (2) Training centers should be provided for those who desire them. A central registry should be established to survey the present and post-war possibilities for graduate training, and medical schools and hospitals that have been approved for residencies would be asked to provide training in hospital administration, psychosomatic medicine and psychoanalytical techniques.

The psychiatrist and the internist should have a common approach to the patient and only after the preliminary study would it be evident whether he should be treated by the internist or the psychiatrist or by both together. The committee suggested that this method be fostered as soon as possible through the following means: (1) The setting up of model clinics, with staffs sufficient in numbers and experience to examine not only the physical status of the patient but also his environmental and family relation-

ships, his emotional and intellectual drives, and his reaction to his illness. (2) The use of young medical and psychiatric residents, with no distinction between the two categories in the daily work or in the management of the patients. (3) The intimate and immediate supervision of the work by mature internists and psychiatrists in numbers sufficient for effective educational programs. (4) The extension of the management of patients into the home environment over periods long enough to assure optimum benefit. (5) The provision of sufficient nursing, psychological and social services to permit thorough exploration of the part which these helpers can play in medical care.

Daniels(2) states that two forces have given real strength to the psychosomatic evolution: first, modern physiological investigation stimulated by clinical medicine and founded on laboratory science and animal experimentation; and second, psychoanalysis without which psychosomatic medicine could not have emerged. The bringing together of these two broad streams of thought promises to establish a real psychosomatic medicine-internal medicine liaison with a consequent increase of knowledge of the emotional factors of physical disease. Daniels outlines a training period of three years, following closely that recently established at Columbia University. The first year is spent in the in-patient and out-patient departments of mental hospitals with access to general medical and surgical services for special training in psychosomatic medicine. This work is supplemented by lectures. Concomitant with this the trainee begins his analysis. In the second year lectures and clinical conferences on more advanced subjects are given. These are supplementary to supervised treatment in psychosomatic medicine. In the third year the student undertakes analysis of patients selected from the general hospital or clinic and suffering from psychosomatic conditions.

Progress in psychiatric education has been relatively static during the war years. In 1942(5) medical schools lost a large number of their psychiatric teaching personnel to the armed services. In 1943(12) progress was stymied by continued loss of personnel, as well as by the accelerated program of teaching. In 1944(13) we reported, in detail, the armed forces' method of training psychiatrists to meet the demands created by the military machine. The present report emphasizes adequate training of the undergraduate, and postgraduate student in "comprehensive medicine" which includes psychiatry as a basic medical science.

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PSYCHOMETRICS

F. L. WELLS, PH. D., CAMBRIDGE, MASS.

For available information on the special achievements of the armed services, one must continue to scrutinize the *Psychological Bulletin*. In this source also, Klebanoff(9) contributes a general historical review of psychological changes in brain damage, with 138-item bibliography.

The *idiot-savant* study by A. D. Roberts (15) is of special methodological interest and would have borne presentation in considerably more detail. The case is an adult quadriplegic spastic, unable to speak. The special accomplishment is the ability to name any day of the week of any date since 1915, and is referred to eidetic imagery. Much ingenuity is indicated in adapting available techniques to an elaborate study of the case from this viewpoint. Halstead(6) offers a more objective formulation of the "power" concept in intelligence measurement, though it does not seem closely related to the way in which this term has been mostly used. Physiological factors have a larger rôle, and it seems also more related to what others have thought of as strength in basic personality. These and other such studies making use of factor analysis, call for progressively closer integration with clinical data. A systematic study of psychometric patternings in advanced age is offered by Rabin(14). Diagnostic uses are problematical, but certain longstanding observations of verbal and time factors are sustained. There is some disagreement with corresponding studies by Wechsler; only chance similarity is found between aging and schizophrenic patterns, as might be expected.

Two long term studies of Binet accomplishment are contributed by Bradway (2, 3). Earlier examinations were at ages of 2½ to 5 years, reexaminations ten years later. Different types of items were compared in predictive value; as verbal, nonverbal, memory, number-concept. Verbal items gave the best correlations, number concept the lowest, but the difference was not great. In another study more concerned with global I.Q.'s, special attention was paid to the large changes; these appeared clearly related to family background, though whether operating through heredity or environment is difficult to clarify. Thom and Newell(19) give an allied follow-up study of children initially testing over 130 Stanford-Binet I.Q. (1916). Eleven years subsequently this group showed an I.Q. range from 106 to 161. One-half the group had apparently made "good" adjustment, though a closer control would be desirable. The assigned causes appear to some extent environmental, to some extent personal but nonintellectual; not necessarily a function of high I.Q. as such.

An addition to the literature of drug effects on mental processes is given by Finkelstein, Alpern and Gantt(4). There is emphasis on conditioned reflex effects, which are much more readily observed than those pertaining to typical psychometric procedures. On the other hand the question is relevant, whether effects at reflex levels, conditioned or otherwise, are as closely related to the reactions of the human organism as a whole, as are those observed with higher mental processes. Bijou and Werner(1) compare a series of brain-injured children with psychometrically matched controls, in respect to types of concept formation. In various relatively non-verbal tasks the brain-injured children had shown impairment, but in a series of more verbalized tests, the work of the brain-injured children was superior to the controls. It is felt that the selected type of test situation was not actually getting at concept formation in the brain-injured children, and that the impairment seen is rather an expression of dynamic, attitudinal factors. In any case, one is hardly committed to looking on "concept formation" in the psychometric sense as a unitary ability, independent of the class of material with which it deals—verbal and number for example.

The psychometric data of World War I continue to furnish ammunition for the nature-nurture controversy. Montagu(11) collates data on the principal tests, for negroes and whites, enlarging on the differences of the two groups as to states of origin. The main differences are ascribed to cultural influences. It is also a question if there would

be some selection in favor of negroes, among those eligible for Army Beta.

The supposed greater variability of the male—once the subject of polemics between Karl Pearson and Havelock Ellis—is studied by J. A. F. Roberts(16) with reference to intelligence tests. Nearly twice as many boys as girls are observed in the extreme thousandth at each end. Such findings acquire much more meaning when presented according to various functions of which intelligence tests are made up. Both factor analysis and clinical experience afford ample basis for such breakdowns. This lack can be largely responsible for the confused situation pointed out by Lewis(10). This investigator, dealing mainly with school children, is concerned largely with age groups, and finds more girls at the superior level, boys at the inferior. Here again specific test contents can be a factor, as well as the differential maturation rates that Lewis suggests.

During the last few years a belatedly increased attention has been given to the qualitative features of the Porteus Maze test, as a result of Porteus' 1942 monograph. It is apparent that similar considerations apply to any test that calls for stylized drawing on the part of the examinee, as was, for example, markedly the case in the Kuhlmann-Binet scale. Such tests thus become projective tests of sorts, a feature that finds its ultimate extension in the expressive movements of handwriting. With special regard to delinquents, Porteus(13) finds this qualitative evaluation discriminative for social and antisocial adjustments in adults, also for satisfactory and unsatisfactory performances in academic and industrial work. The claims are such as made for projective tests in general. Reviewing these considerations, Sanderson(18) compares the qualitative aspects of the mazes in groups of fifth, eighth and eleventh grade school children. The qualitative scores naturally increase with development, more between fifth and eighth than between eighth and eleventh grades, as might be anticipated. Less to be anticipated is the high similarity between the groups as to patternings of response. There was less sex difference than Porteus had observed.

As in the maze tests, certain meanings of the block designs have been lost because of all-or-none features in their scoring. Goldfarb(5) offers a treatment to remedy this situation, giving partial credits, with less emphasis on speed. In comparison with the Wechsler Block Design test, the present form is found to show closer relationship to the Vigotsky and Weigl tests; also notably, to the verbal Wechsler Similarities. It is probable that qualitative features in these responses could also be developed along the lines already cited for the maze tests.

An added burden upon selectional procedures is placed by programs of rehabilitation. Newman(12) reports a special use of the Kent-Shakow Industrial Formboards in a tuberculosis sanitarium. The procedure is found serviceable for predictions as to shopwork, broken down into features of accuracy, speed and constructive thinking. Shopwork ratings in these respects gave a tetrachoric r of .76 with global time scores.

While always among the more established non-language procedures, the Dearborn Formboard #3 was by no means fully exploited in its original offering. Kent(8) presents a study covering ten years, concerning an eight-task series developed by her, with records from over 1,000 individuals. More emphasis is laid on moves than time; the performances are matched against mental age ratings otherwise available.

Among the efforts to represent non-intellectual traits in standard situations, the "aspiration-level" techniques assume a growing importance. Basically, these denote the difference between a set goal and how far it is attained or surpassed; Rotter's(17) fourth paper of a series points out some elaborations which are necessary. Reactions to the task may represent impulsiveness, "catastrophic" tendencies, desire to escape; including over-aggressive and overprotective responses. In most general terms, the procedure reflects degrees (if any) of inadequacy feelings and the nature of the defenses developed. In addition to the differences of estimates and achievement, one considers particularly how succeeding estimates are affected by preceding successes or failures in meeting the goal set. Diagnostic validity is now claimed for the statistical extremes.

The great emphasis on method that in this country dominates the problem of "personality" as well as other psychological areas,

may obscure one's conceptual thinking about his own concepts. Hutton's(7) paper may be cited as a corrective, possibly an overcorrective. One can scarcely quarrel with the essential aim of greater precision in the use of such terms as individual, character, ego, self, as well as personality. Unfortunately these usages are very resistant to stabilization and control. "Strictly speaking," the paper closes, "personality is an ethical and spiritual category and the psychologist who would study it must do so from the ethical and religious standpoint, and not from the psychological." It is a far cry to the work of H. A. Murray, not to say R. G. Bernreuter.

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CORRESPONDENCE

Editor, AMERICAN JOURNAL OF PSYCHIATRY:

SIR: I wish to point out that the recent article: "Dr. C. G. Jung and National Socialism" by S. S. Feldman (Sept. 1945, p. 263) misrepresents Jung as having been an admirer of National Socialism who allegedly changed his mind on V-E day. This impression is created partly by way of arbitrary quotations from an article which ends in one of the most positive acknowledgments of Freud's pioneering genius Jung has written in many years (in a German publication under Hitler in 1934). But these quotations would not have been sufficient, had not the German text been mistranslated in one point: "National-Sozialismus auf den eine ganze Welt *mit erstaunten Augen* blickt," is translated by Feldman: "National-Socialism at which the whole world looks *with admiration*" instead of the only correct translation *"with astonished eyes."*

Furthermore Feldman creates misunderstanding by mixing up Jung's position on National-Socialism and his theory of the collective unconscious. His concept of a basic psychological difference between the German and the Jewish mind has never included the Nazi distinction between master race and inferior race. In fact as early as March 1936 Jung put himself on record as a critic of National Socialism as a regressive phenomenon of the German people as a whole, while most psychiatrists and sociologists had to wait until 1944 before they recognized this fact: (*"Wotan" Neue Schweizer Rundschau,* March 1936; translated in the *Saturday Review of Literature,* vol. 16, no. 25, Oct. 16, 1937). On V-E day Jung did not change his opinion of Germany "the land of spiritual catastrophes, where certain natural facts never made more than a superficial truce with Reason, the world-compeller . . . . " (*"Wotan"* article), nor did he ever change his theory of the collective unconscious before or after Hitler's rule.

GOTTHARD BOOTH, M. D.

Editor, AMERICAN JOURNAL OF PSYCHIATRY:

SIR: In answer to your correspondent's objection I maintain "admiration" most adequately expresses the spirit of the text. However, allowing that he may be right in asserting that the correct translation is "with astonished eyes," I do not feel that it changes the sentiment expressed by Jung.

S. S. FELDMAN, M. D.

THE MARIJUANA QUESTION

Editor, AMERICAN JOURNAL OF PSYCHIATRY:

SIR: In the JOURNAL for September 1945 there appears an article on page 280 by Lawrence Kolb in which he estimates the number of marijuana addicts as "several thousand users." I am not aware of the statistics on which this statement is based. However, I am inclined to believe this underestimates the extent to which the drug is used in this country.

At the Ninth Service Command Rehabilitation Center where military offenders are serving sentences imposed by General Courts Martial, an extensive survey is made of every soldier who goes through with the rehabilitation program in any of its phases. It has been my experience that the number of military offenders who have recorded evidence of habitual use of the drug, or who admit it in their interviews, is higher than one would expect if there were only "several thousand users" of the drug.

The following is excerpted from "Psychoses in Military Prisoners" recently submitted by me to the Surgeon General Office for approval for publication. The situation described therein may be exceptional and does not necessarily invalidate Dr. Kolb's

statement. It does show however that in this special situation his statement does not hold.

"A survey of 500 consecutive, unsettled social histories showed 5 (1%) had been known as addicts. It is frequently found in addicts and others using drugs to excess, that the family is unaware of it and, therefore, social histories may fail to reveal the facts. If to the 1% revealed in the histories were to be added the addicts identified by other recorded evidence and by their own admission, the percentage would be much higher. Other drugs seldom were missed; but the withdrawal of marijuana was an important etiologic factor in some psychotic reactions early in confinement. They would beg for some "weed" or "tea," or a "reefer." The records of the 361 psychotics showed specific inquiry had been made with respect to the use of the drug in 214 cases; and 38 (17.8%) admitted habitual use or showed references to it in their records. Almost without exception, the marijuana addicts were Negroes."

The few exceptions were soldiers of Mexican extraction usually found in the southwest part of the country.

Sincerely yours,

ISIDORE I. WEISS,
Major, M. C.

DR. KOLB'S COMMENT

Editor, AMERICAN JOURNAL OF PSYCHIATRY:

SIR: It is to be noted that Dr. Weiss is dealing with prisoners in a military situation where presumably the smoking of marijuana would be an offense. It is natural that among offenders one would come across more users than the average. Negroes and Mexicans do use marijuana more than other people in this country, but the use among Negroes is, as a rule, sporadic and not a habitual thing.

The statement that the withdrawal of marijuana was an important etiologic factor in some psychotic reactions if borne out by facts is a new thing. The psychotic reactions previously reported have to do with the use of the drug and not to its withdrawal. I am sure that my observation that habitual users are numbered among thousands as compared with millions of alcoholic users is correct.

Sincerely yours,

LAWRENCE KOLB, M. D.,
Medical Director.

COMMENT

BENJAMIN RUSH BICENTENARY

To commemorate adequately the bicentenary of the birth of the many-sided Rush—which fell on December 24, 1745 according to the Julian calendar then in vogue in Britain, but on January 4, 1746 according to the "New Style" Gregorian calendar—it would be necessary to devote space to the numerous directions of enquiry and of private and public enterprise that engaged his interest and activity.

Weir Mitchell, in 1887, called Rush "the greatest physician this country has produced." That remark is of course dated, but the fact that a man of Weir Mitchell's authority was moved to say it three-quarters of a century after Rush's death is significant enough.

As the first American physician to interest himself particularly in mental disorders, Benjamin Rush also wrote the first text-book dealing with this aspect of medicine—his "Medical Inquiries and Observations upon the Diseases of the Mind," published in 1812. A second significant fact relates to the fate of this book; it went through five editions, the last appearing in 1835, and the text of the fifth edition is identical with that of the first. The author could not revise his work for he died in 1813; and the four verbatim reprintings indicate not only the esteem in which Rush's teaching was held but also that there was lamentably little competition in this field in the first half of the nineteenth century.

Benjamin Rush was an opponent of war, but he was realist enough to know that war-making proclivities are not easily done away; therefore he advocated more attention in education to military science, in view of the remote prospect of a time when wars would no longer be "the unchristian mode of deciding disputes between Christian nations."

To bring that happy time nearer he made two proposals which, had they been acted upon, might have made the first half of the twentieth century a brighter page in history than it is. In an address to the Government he urged the establishment of a "Peace-office." Inasmuch as there was a Secretary of War there should also be a Secretary of Peace, whose function should be to foster education and to counteract the influences, customs and practices that tended toward war. In this idealistic aspect of his nature, Rush, the presbyterian, was one with the Quakers of Pennsylvania.

His second proposal was so wise and far-seeing, so fraught with common sense, directed to a goal so obviously of paramount importance, that, as human history so often demonstrates, the neglect that awaited it could have been taken as a foregone conclusion. "It takes from seven to forty years to put an idea over on the public," said Thomas A. Edison. "Even a self-evident proposition requires ten years." Edison was optimistic. Rush's proposal was made one hundred and fifty-nine years ago. He asked that the Government should found a federal university at the nation's capital for the specific purpose of training young men for the civil service. In this institution all matters connected with government would be taught. Traveling representatives would be sent to Europe "to collect and transmit knowledge for the benefit of our country." The most important stipulation was that all aspirants to public office would be obliged to go by the federal university route and that eventually only its graduates would be eligible to hold government posts.

If this utterly reasonable proposition needed justification, Rush's argument was ready: "We require certain qualifications in lawyers, physicians and clergymen, before we commit our property, our lives or our souls to their care . . . . why then should we commit our country, which includes liberty, property, life, wives and children, to men who cannot produce vouchers of their qualifications for the important trust? We are restrained from injuring ourselves, by employing quacks in law; why should we

not be restrained in like manner, by law, from employing quacks in government?"

The difficulties in the way of this move and in guaranteeing its objectives are only too obvious; but is it not conceivable that if America had set the high example envisaged by Benjamin Rush, it might perchance have been followed sooner or later in other quarters of the world, and that in such fashion rational and humanitarian policies of government might ultimately have prevailed widely enough to bring an era of peace nearer than has hitherto been in prospect?

COMMEMORATING THE RUSH BICENTENARY

The College of Physicians of Philadelphia, founded in 1787 with Dr. Benjamin Rush as a co-founder, is observing the bicentenary of Rush's birth with a comprehensive exhibit running through the month of February. The exhibit largely duplicates that assembled in honor of the centennial meeting of the Association in Philadelphia in 1944. Members who attended that meeting will recall that the exhibit contained Rush's autograph manuscript of his *Lectures upon the Mind;* numerous autograph letters; student notes on his lectures; rare photographic prints and editions of his works; his watch and shoe-buckle, among personal memorabilia. In addition, the December, 1945, number of the College's *Transactions and Studies* contains an article, by James E. Gibson, entitled, "Benjamin Rush Terminates a Post-War Mutiny among Troops Demanding Their Discharge," which, based on a hitherto unpublished letter of Rush to John Adams, brings to light a remarkably apposite incident illustrating how well and favorably known Rush was to the ordinary American soldier in the Revolutionary War.

The Johns Hopkins Medical History Club commemorated the two-hundredth anniversary of the birth of Benjamin Rush by a special meeting at the Institute of the History of Medicine on Monday, December 17, 1945. The following program was presented.

Benjamin Rush as a Psychiatrist
Dr. Clifford B. Farr, Philadelphia

Benjamin Rush as seen in his Autobiography and Commonplace Book
Dr. George W. Corner

Benjamin Rush and the Brunonian System
Dr. Owsei Temkin

In addition an exhibit illustrating the life and work of Rush was displayed in the Exhibition Hall of the Institute.

JOSIAH MACY, JR. FOUNDATION WAR REPRINT SERVICE

Dr. Willard C. Rappleye, president of the Foundation, announces that more than 5,000,000 copies of over 400 leading medical and scientific articles have been published by the Foundation's War Reprint Service during the last three years for medical officers of the armed forces of the United States and in so far as possible Canada, England, New Zealand, Australia, the Union of Socialist Soviet Republics and China. Dr. Rappleye stated that with the plans for demobilization of the armed forces the reprint service will be discontinued by January 1, 1946.

The purpose of this service was to bring new and important developments in the science and practice of medicine to medical officers who were largely cut off from the sources of medical information during the war. The Foundation had the active cooperation of the committee on pathology of the National Research Council and of the National Committee for Mental Hygiene in the selection of articles that had a direct bearing on the medical and health problems of military service. The distribution to the medical officers was worked out in cooperation with the Surgeons General of the Army and Navy and the Air Surgeon. Through the courtesy of the National Committee for Mental Hygiene, more than 1,000,000 reprints were delivered to neuropsychiatric medical officers.

In addition to the articles reproduced from

journals the Foundation has published for the Air Surgeon 5 original monographs, prepared by medical officers of the Army Air Forces, dealing with personality disturbances occurring in combat zones. Over 95,000 copies of these monographs were distributed by the reprint service as official documents of the Office of the Air Surgeon. Eight additional monographs and 9 reviews of medical literature on subjects of military interest have been prepared and 70,000 copies distributed. Since August 1944 a *News Letter* for the rheumatic fever and streptococcus control program of the Army Air Forces has been published monthly for the Air Surgeon, and over 1000 copies each month have been mailed to interested medical officers, military hospitals and medical school libraries. Through the cooperation of the Interdepartmental Committee on Cultural and Scientific Cooperation of the Department of State, 60,000 reprints have been distributed to medical teachers and investigators in 48 foreign countries. The Office of War Information requested permission to circulate the Foundation's reprints among more than 30 of their foreign outposts, and has reduplicated selected articles for their distribution to medical leaders abroad.

Dr. Rappleye stated that the Foundation has expended over $225,000 in financing the War Reprint Service.

A letter has been addressed to Dr. Frank Fremont-Smith, medical director of the Josiah Macy, Jr. Foundation expressing the appreciation and gratitude of readers of the JOURNAL, both in and out of the armed forces, for this great national and international service of the Foundation.

NEWS AND NOTES

WESTERN RESERVE UNIVERSITY PSYCHIATRIC CLINIC.—University Hospitals, Western Reserve University, announce a program to establish a psychiatric clinic to provide treatment for civilians at a nominal fee and free treatment for servicemen and their families who are referred by the American Red Cross. The Greater Cleveland Red Cross chapter has procured financial support for the program applying to servicemen and their families.

The clinic will be housed temporarily in Lakeside Hospital and eventually in a new psychiatric building to cost approximately $450,000 and to adjoin the other hospitals of the university group on Western Reserve campus. It will be staffed by 5 psychiatrists, 1 psychologist, psychiatric social workers and nurses.

The director of the clinic will be Major Douglas D. Bond who will occupy the newly created chair of psychiatry in Western Reserve University's School of Medicine. Major Bond, age 33, the son of Dr. Earl D. Bond, is a graduate of Harvard College (A. B.) and of the University of Pennsylvania (M. D.). He served as resident in psychiatry at Butler Hospital, received a fellowship in psychiatry at the Institute of Pennsylvania Hospital, a research fellowship in physiology of the brain at Harvard Medical School, and instruction in psychoanalytical methods at Boston Psychoanalytical Institute. He entered the armed services in 1942 where he has been director of the Laboratory of psychiatry at the School of Aviation, Randolph Field, Texas, director of psychiatry of the Eighth Air Force, Central Medical Establishment and latterly head of psychiatry in the United States air surgeon's office, Washington.

THE NEUROPSYCHIATRIC INSTITUTE.—This new agency has been established at 10528 Park Lane, Cleveland 6, Ohio. Its aim is to provide clinical facilities for diagnosis and treatment of patients as well as a research and teaching program. Seminars in neuropsychiatry have been established for physicians of the Veterans Administration in this region and for local practicing doctors.

The staff of the Neuropsychiatric Institute at present consists of Dr. J. L. Fetterman, director; Dr. M. D. Friedman, associate director; Dr. A. A. Weil, research psychiatrist; and Dr. Evelyn Katz, clinical psychologist.

MEDICAL CORRECTIONAL ASSOCIATION ANNUAL MEETING.—The 1945 meeting of the Medical Correctional Association was held together with the Committee on Crime Prevention.

Dr. Robert V. Seliger of Baltimore, Md., was reelected President; Dr. Frank J. Curran of New York City was elected 1st Vice-President; Dr. Michael J. Pescor of Springfield, Missouri, 2nd Vice-President; Dr. Robert M. Lindner of Baltimore, Md., Secretary-Treasurer; Dr. S. Bernard Wortis of New York City, Councillor to succeed Dr. Lawrence F. Woolley whose term expired this year.

President Seliger addressed the meeting on "Criminal Hygiene." The program is directed to the prevention of crime, therapy of the incarcerated criminal, prevention of recidivism, treatment of the pre-delinquent, as well as the diagnosis of "crime potential" situations within the community.

Dr. Frank J. Curran, formerly of Bellevue, and now of Youth House in New York City, presented "Group Treatment of Criminals," in which he surveyed the field of group therapy.

Dr. Robert M. Lindner of Baltimore, presented a paper on "Practical Mental Hygiene for the Prisoner." His recommendations included a mental hygiene training program for prison guards, and classes which they could attend without deductions in pay.

Dr. Ralph S. Banay read a paper on "Wanted—An Institute of Criminal Science," and Dr. Sophie Robison of New York City, spoke on "Wanted—An Index for Crime and Delinquency."

The final paper was read by Prof. Negley K. Teeters of Temple University, who reported on "Fundamentals of Crime Prevention." This was a general survey of the techniques currently used and some broad suggestions for more effective dealing with the crime problem.

CENTRO DE ESTUDOS FRANCO DA ROCHA.—This organization for research in neurology and psychiatry, incorporated in 1942, represents the Juquerí State Hospital, São Paulo, Brazil, and 7 associated hospitals. The society has been named after Franco da Rocha, who founded the Juquerí State Hospital 50 years ago.

Dr. José P. G. d'Alambert, secretary of the Centro de Estudos Franco da Rocha, has addressed a letter to the JOURNAL inviting correspondence with American psychiatrists and particularly the exchange of reprints for their library.

North Americans who may wish to have closer relations with their colleagues in the great Brazilian medical center which is São Paulo, may address Dr. d'Alambert at Centro de Estudos Franco da Rocha, Franco da Rocha S. P. R., São Paulo, Brazil.

TRAINING IN NEUROLOGY AND PSYCHIATRY AT BELLEVUE HOSPITAL.—The New York University College of Medicine, department of psychiatry, announces a training program in psychiatry and neurology at the psychiatric division of Bellevue Hospital. In the psychiatric division 16 appointments are made to the position of assistant resident (intern), 11 residents, and a limited number of fellows and externs. The neurological service in the psychiatric division makes appointments to the categories of assistant resident (intern) and resident, for basic training in clinical neurology. This training program is approved by the American Board of Psychiatry and Neurology and by the American Medical Association. Appointments will be made each year to start July 1 and to run to June 30 of the following year. Requests for application forms and communications regarding these staff positions should be addressed to Dr. S. Bernard Wortis, Director, Psychiatric Division, Bellevue Hospital, 400 East 30th Street, New York, N. Y.

THE AMERICAN COLLEGE OF PHYSICIANS.—Will resume its annual meetings in 1946 and has now definitely chosen Philadelphia, May 13-17, inclusive. Headquarters will be at the Philadelphia Municipal Auditorium, 34th Street below Spruce.

The meeting will be conducted under the presidency of Dr. Ernest E. Irons, Chicago, Illinois, and the general chairmanship of Dr. George Morris Piersol, Philadelphia, Pennsylvania.

THE HELEN PUTNAM FELLOWSHIP FOR ADVANCED RESEARCH IN GENETICS OR MENTAL HEALTH.—Radcliffe College invites applications for the Helen Putnam Fellowship for Advanced Research. The Committee on Award will receive nominations from eligible women scholars who have research in progress in the field of genetics or of mental health, broadly defined.

The fellowship will pay a stipend of $2,000 covering a tenure of eleven months from October 1, 1946, with the possibility of a renewal for a similar period. All normal laboratory facilities will be provided to the holder of the fellowship. Each fellow will be assigned room and board (at cost) in one of the Radcliffe graduate houses and will be expected to be in residence during the tenure of the fellowship.

In general, the Committee will limit its choice to mature women scholars who have gained their doctorate or who possess equivalent qualifications.

Applications for the award should be submitted not later than April 1, 1946. Application forms may be secured by addressing: Committee on the Helen Putnam Fellowship for Advanced Research, Radcliffe College, Cambridge 38, Massachusetts.

MENTAL HYGIENE POST IN HAWAII.—In 1942 the Mental Hygiene Society of the Territory of Hawaii was organized. It has created the position of Executive Secretary, for which candidates may now apply. *Salary,*

$350.00 a month, advancement depending upon the growth of the Society and its work. *Duties:* To guide, stimulate and promote the development of an integrated program for the Society. Major activities, education, coordination, publicity. *Requirements:* Training and experience in psychiatric social work with demonstrated ability in public relations preferred. Candidates with training and successful experience in community organization will also be considered. *Selection:* Selection will be made on the basis of an unassembled examination which will include submission of a short thesis on a pertinent subject. For particulars write immediately, clipper mail, to the Society, attention Miss Vivian Johnson, c/o Territorial Society for Mental Hygiene, Mabel Smyth Building, Honolulu, T. H.

North Carolina Neuropsychiatric Association Reactivated.—Following a disruption of its activities during the war years the North Carolina Neuropsychiatric Association was reactivated on October 26, 1945, with the resumption of its annual meeting. This was held at the Duke University School of Medicine, Durham, North Carolina, and the scientific session was attended by 250 individuals. Officers of the Association elected for the coming year are Maurice H. Greenhill, Duke University School of Medicine, President, Elbert McMillan, Bowman Gray School of Medicine, Vice-President, R. Charman Carroll, Duke University School of Medicine, Secretary-Treasurer.

Position of School Psychiatrist, City of New York.—The Board of Examiners of the Board of Education, City of New York, announces examination for the license of school psychiatrist, to be given in March, 1946. The position carries the advantages of liberal retirement and pension, and civil service tenure. The salary starts at $6,000 and goes to $7,000 in three years.

The general requirements are: Age: 30 to 45 years; graduation from a Grade A medical college, and either (a) five years of practice in psychiatry including 800 hours in an approved mental institution, and 1200 hours in an approved child guidance clinic, or (b) three years of practice in psychiatry including 1200 hours in an approved mental institution and 1200 hours in an approved child guidance clinic.

The final date for filing applications is February 25, 1946. Application forms may be obtained in person, or by writing to: Board of Examiners, Room 437, Board of Education, 110 Livington Street, Brooklyn 2, New York. The written request must be accompanied by a large, self-addressed envelope bearing 6 cents in stamps.

American Board of Psychiatry and Neurology, Inc.—At the annual meeting of the American Board of Psychiatry and Neurology the following officers were elected: President, Dr. John C. Whitehorn; Vice President, Dr. Percival Bailey; Secretary-Treasurer, Captain Francis J. Braceland.

It was voted to amend the By-laws so as to discontinue certification on record as of January 1, 1947.

The next examination will be held before the meeting of The American Psychiatric Association in Chicago on May 24th and 25th and before the meeting of the American Neurological Association in San Francisco June 26th, 1946, provided a sufficient number of candidates appear.

LIST OF DIPLOMATES CERTIFIED IN DECEMBER 1945

Neurology and Psychiatry

(By Examination)

Berman, Sidney (Captain), Station Hospital, Andrews Field, Camp Springs, Md.
Breslin, Winston I. (Major, R.C.A.M.C.), Christie St. Hospital, Toronto 4, Ontario, Canada.
Brinegar, Willard C., 105 Pleasant St., Concord, N. H.
Campbell, Alice Boole, 563 Park Ave., New York 21, N. Y.
Clinco, Arthur Attilio, 9 Plaza St., Brooklyn, N. Y.
Cummings, Joseph L. (Lieut. U.S.N.R.), U. S. Naval Hospital, Seattle, Wash.
Fisher, Charles, U. S. Marine Hospital, Ellis Island, N. Y.
Gaskill, Herbert S. (Major), 111 N. 49th St., Philadelphia, Pa.
Gerson, Martin Jerome (Captain), P. O. Box 75, Tilton General Hospital, Fort Dix, N. J.
Hoch, Paul H., 1165 Park Ave., New York, N. Y.

Hunt, Samuel P., 10421 Voltaire Ave., Oakland, Calif.
Johnson, Max Edwards (Captain), Borden General Hospital, Chickasha, Okla.
Katz, Charles Joseph, Elgin State Hospital, Elgin, Ill.
Levin, Sidney, 74 Fenwood Rd., Boston, Mass.
Littlejohn, Wilmot S., 2629 Aberdeen Rd., Birmingham, Ala.
Lowenbach, Hans, Duke Hospital, Durham, N. C.
Merrill, Bruce R., 1344 Midland Ave., Bronxville 8, N. Y.
Modlin, Herbert C. (Captain), A.A.F. Regional Hospital, Keesler Field, Miss.
Nagler, Benedict (Major), Cushing General Hospital, Framingham, Mass.
Noran, Harold H., 507 Physicians and Surgeons Bldg., Minneapolis 2, Minn.
Pinsky, Abe, 883 Park Place, Brooklyn 16, N. Y.
Roizin, Leon, 722 West 168th St., New York 32, N. Y.
Rubinstein, Joseph E., 1049 Park Ave., New York 28, N. Y.
Simms, Leon Marcus (Captain), Newton D. Baker General Hospital, Martinsburg, W. Va.
Sturdevant, Charles O (Captain), Medical Dental Bldg., Portland, Ore.
Thompson, George N., Los Angeles County General Hospital, 1200 N. State St., Los Angeles 33, Calif.
Train, John Baer, 7 West 81st St., New York, N. Y.
Tucker, Walter Irvin (Lieut.), Fleet Air Alameda, Naval Air Station, Alameda, Calif.
Ullman, Montague, 116 Rutledge St., Brooklyn, N. Y.
Weickhardt, George D., St. Elizabeths Hospital, Washington 25, D. C.
Woodson, Frederick G. (Captain), Halloran General Hospital, Staten Island, N. Y.

Neurology and Psychiatry

(On Record)

Davis, Ralph Edward, Veterans Administration, Boise, Idaho.
Dixon, Robert L., Caro, Mich.
Lewy, Ernst, 3617 W. Sixth Ave., Topeka, Kans.

Psychiatry

(By Examination)

Adam, Alan B. (Captain), 10313 Churchill Ave., Cleveland, Ohio.
Adams, Freeman Hornibrook (Lt. Col.), Station Hospital, Camp Wolters, Tex.
Adler, Morris Harold (Captain), A.A.F. Regional Hospital, ORD, Greensboro, N. C.
Ascher, Abraham H., 125 Lenox Rd., Brooklyn, N. Y.
Baur, Alfred K., St. Elizabeths Hospital, Washington 25, D. C.
Brancale, Ralph, Psychiatric Clinic, Attica State Prison, Attica, N. Y.
*Carey, Thomas C., 50 Farmington Ave., Hartford 5, Conn.
Clark, Raymond Stanley (Comdr.), U.S.N.T.C. Bldg. 109, Great Lakes, Ill.
Clarke, Robert B., University Hospital, Ann Arbor, Mich.
Cohen, Louis Allan, 309 State St., Little Rock, Ark.
Drobnes, Sidney, Norwich State Hospital, Norwich, Conn.
Duncan, Herbert A. (Captain), 2900 Blanche St., Pasadena, Calif.
Emmons, Marcus Brown (Captain), Regional Hospital, Camp Bowie, Tex.
Fabian, Abraham A., 15 E. Tenth St., New York 3, N. Y.
Fishback, Dora, 43 E. Ohio St., Chicago 11, Ill.
Freyhan, Fritz Adolf, Delaware State Hospital, Farnhurst, Del.
Goldman, Douglas, 630 Vine St., Cincinnati 2, Ohio.
Green, Sidney Lewis (Lieut. (j.g.) U.S.N.R), 1050 Ocean Ave., Brooklyn 26, N. Y.
Greenberg, Harold A., 4850 Drexel Blvd., Chicago, Ill.
Greenblatt, Milton, 74 Fenwood Rd., Boston, Mass.
Greene, Bernard L. (Major), 7206 S. Paxton Ave., Chicago, Ill.
Hochstetter, Werner, 127 E. 81st St., New York, N. Y.
Howell, Roger William, 1313 E. Ann St., Ann Arbor, Mich.
Huston, Paul E., Psychopathic Hospital, Iowa City, Iowa.
Jacoby, Ralph B., Pilgrim State Hospital, Brentwood, L. I., N. Y.
Kepecs, Joseph G., 5600 Blackstone Ave., Chicago, Ill.
Kerman, Edward Fox, Springfield State Hospital, Sykesville, Md.
Kildee, Henry Ambrose (Commander), 447 Hazel St., Tamaqua, Penna.
Kramer, Paul (Major), Bushnell General Hospital, Brigham City, Utah.
Lehrman, Samuel R., 100 W. 55th St., New York 19, N. Y.
Lhamon, William Taylor (Lt. Comdr., U.S.N.R.), Bureau of Medcine and Surgery, Navy Department, Washington 25, D. C.
Liebman, Samuel, 225 Sheridan Rd., Winnetka, Ill.
Luke, Harry B., Pilgrim State Hospital, West Brentwood, N. Y.
Molle, S. Albert (Captain), Newton D. Baker General Hospital, Martinsburg, W. Va.
Neale, Claude Linwood, Medical College of Virginia, Richmond 19, Va.
Needleman, Max, 132 E. 73rd St., New York, N. Y.
Noble, Douglas, 1028 Connecticut Ave., Washington 6, D. C.
Novey, Samuel, 114 Medical Arts Bldg., Baltimore 1, Md.

* Indicates complimentary certification.

Ozarin, Lucy D. (Lieut.), U.S. Naval Hospital, Bethesda 14, Md.
Pitrelli, Ferdinand R., State Hospital, Central Islip, N. Y.
Poucher, George E., Station Hospital, Camp Patrick Henry, Va.
Prusmack, John J., Station Hospital, Fort Crook, Nebr.
Rackow, Leon L. (Major), Veterans Hospital, Tuscaloosa, Ala.
Raffaele, Angelo J., Willard, N. Y.
*Ribner, Harold (Captain), A.A.F. Regional Hospital, Sheppard Field, Tex.
Rickles, George A. (Captain), 1125 Medical Dental Bldg., Seattle, Wash.
Rickless, Herman, Westborough State Hospital, Westborough, Mass.
Ritey, Hector J. (Captain), Staten Island Area Station Hospital, New Drop, S. I., N. Y.
Roach, William Laray (Major), Med. Br., W.D.P.C., Camp Chaffee, Ark.
Robinson, Martin H., 4130 Girard Ave., Philadelphia 4, Penna.
Roos, Alan (Lt. Commander), 6 E. 79th St., New York 21, N. Y.
Roose, Lawrence J. (Captain), Welch Convalescent Hospital, Daytona Beach, Fla.
Rossman, William Byron, Box 54, Ellettsville, Ind.
Shelton, William P., Brooke General Hospital, Ft. Sam Houston, Tex.
Silverman, Samuel (Captain), Nichols General Hospital, Louisville 2, Ky.
Simon, Werner (Captain), Veterans Administration, American Lake, Wash.
Slater, Alice, 42-16 Eightieth St., Elmhurst, L. I., N. Y.
Swartz, George K., Norristown State Hospital, Norristown, Penna.
Thornton, J. Peter (Commander), 87 Adams St., Dorchester, Mass.
Trevaskis, John H., 1142 Madison Ave., New York 28, N. Y.
Wagner, Philip Sigmund (Major), 916 W. University Pkwy., Baltimore, Md.
*Wanner, Albert L., 58 Sixteenth St., Wheeling, W. Va.
Wilk, Edward K., Connecticut State Hospital, Middletown, Conn.
Wright, Katharine W., 912 S. Wood St., Chicago 12, Ill.
*Zeitlin, Howard, 55 E. Washington St., Chicago, Ill.
Zonnis, Marian Estelle, 1919 Matoax Ave., Walnut Hills, Petersburg, Va.

Psychiatry

(On Record)

Blossom, Harry Shook, Patton State Hospital, Patton, Calif.
Carlisle, Chester Lee, Veterans Administration, Palo Alto, Calif.
Fay, Jewel, 2744 Telegraph Ave., Berkeley, Calif.
Freshour, Ina Moore, Norwalk State Hospital, Norwalk, Calif.
Grady, Charles W. (Lt. Colonel), Veterans Administration Hospital, Palo Alto, Calif.
Gray, Earle Vincent, Gowanda State Homeopathic Hospital, Helmuth, N. Y.
Groom, Wirt Clarence, Hudson River State Hospital, Poughkeepsie, N. Y.
Henry, George W., 111 E. 71st St., New York 21, N. Y.
O'Neil, Richard T., Veterans Administration, Northampton, Mass.
Pennington, Love Elree, Milledgeville State Hospital, Milledgeville, Ga.
Pennington, Veronica Murphy, Milledgeville State Hospital, Milledgeville, Ga.
Robertson, Robert Clarence, Veterans Administration, Dayton, Ohio.
Robinson, George Wilse, 2650 Pasco St., Kansas City 8, Mo.
Wills, John Walter (Major), Veterans Administration, Palo Alto, Calif.

Neurology

(By Examination)

*Brody, Matthew, 41 Eastern Parkway, Brooklyn 17, N. Y.
*Chrzanowski, Gerhard, West Brentwood, N. Y.
*Collins, Ralph T. (Lt. Colonel), Mason General Hospital, Brentwood, N. Y.
Dillenberg, Stanley M. (Lt. Comdr.), 700 W. 168th St., New York, N. Y.
*DuBois, Franklin Smith, Silver Hill, New Canaan, Conn.
Friedman, Arnold Phineas, 100 East Gun Hill Rd., New York 67, N. Y.
*Frignito, Nicholas G., 225 S. Seventeenth St., Philadelphia 3, Penna.
*Gitt, Joseph Julian, Schick General Hospital, 6164 Pershing Ave., St. Louis, Mo.
*Lapovsky, Arthur J. (Major), Oliver General Hospital, Augusta, Ga.
*Lieberman, Alan A., 750 S. State St., Elgin, Ill.
Little, Samuel Clements (Captain), O'Reilly General Hospital, Springfield, Mo.
Meyersburg, Herman Arnold, U.S.N. Train. & Distrib. Center, Disciplinary Comm., Camp Peary, Va.
*Schatz, Irvin I. (Major), Station Hospital, Aberdeen Proving Ground, Md.

Neurology

(On Record)

*Foster, Harold E. (Lt. Colonel), Veterans Administration Facility, Northport, L. I., N. Y.

* Indicates complimentary certification.

Death of Dr. Thos. B. Bass.—Having served as superintendent of the Abilene State Hospital, Texas, from 1909 to 1943, Dr. Thomas Bridgers Bass died on December 22,

1945, at 80 years of age. He had officiated as vice-president of The American Psychiatric Association, president of the Big Spring-El Paso Medical Society and vice-president of the Texas Medical Association. Dr. Charles W. Castner, Chief, Division of Institutions, State Board of Control, Texas, in paying tribute to Dr. Bass says: "He was a great soul, giving his entire professional life to the care and treatment of our citizens who suffered from nervous and mental illnesses. During his active years, he never missed a session of The American Psychiatric Association, and looked forward each year to meeting with the members in session and discussing the written papers."

VETERANS REHABILITATION CLINIC, PRESBYTERIAN (NEW YORK) HOSPITAL.—The Columbia-Presbyterian Medical Center, New York, announces the opening of the Veterans Rehabilitation Clinic of the Presbyterian Hospital on November 7, 1945. The clinic will be staffed by 12 psychiatrists and will be gradually increased as the need arises. Consultations will be available with members of the medical staff in an effort to treat organic as well as functional diseases. The laboratory facilities of the Medical Center will be available for these patients; clinical psychologists will carry out personality and aptitude studies; and a therapist trained in rehabilitation work will direct the occupational therapy activities.

A committee of layman made up of representatives from various types of industry and business will work in close cooperation with the clinic in absorbing veterans into their organizations at such time and in such capacity as the clinic recommends.

DON PIO DEL RIO HORTEGA.—The death in June 1945 in Buenos Aires of the great Spanish scientist, del Rio Hortega, removed one of the leading world authorities on the histology and histopathology of the central nervous system. Born in Valladolid in 1882, Don Pio del Rio Hortega studied medicine in that city and received his doctor's degree in Madrid in 1909 and was later a pupil and associate of Cajal.

With the disturbances caused by the Civil War in Spain, del Rio Hortega migrated to England and was for a time associated with the University of Oxford, coming finally to settle in Buenos Aires. Probably the contribution by which he is best known amongst neuropathologists was the development of his silver impregnation method which made possible his exquisite demonstrations of the various forms assumed by the microglia, so-called because at first considered to be of ectodermal origin but which Hortega in common with other authorities later recognized as mesodermal derivatives. To his credit is also assigned the identification of the apolar corpuscles of Cajal as oligodendroglia, which are derived from the ectoderm.

An admirable biography and detailed account of del Rio Hortega's histological studies, with a profusion of fine illustrations, was contributed to the September 1945 number of the Revista de Neuro-Psiquiatria (Lima, Peru) by Dr. Enrique Encinas, director of the laboratory of neuroanatomy and neuropathology of the psychiatric clinic of the faculty of medicine, University of Lima. This contribution, occupying 125 pages, offers a reasonably complete statement of the scientific work of one whom the author calls "the most distinguished histologist of our times and the most illustrious representative of contemporary Spanish science."

PSYCHIATRIC PERSONNEL PLACEMENT SERVICE

To aid in the solution of psychiatric problems arising out of the war, The American Psychiatric Association and the National Committee for Mental Hygiene have jointly announced the appointment of Captain Forrest M. Harrison (MC), U. S. N., as Director of a newly established Psychiatric Personnel Placement Service. The service is designed especially to help physicians and psychiatrists make contacts with training opportunities such as residencies, post-graduate courses and fellowships, and to aid in-

stitutions in locating suitable candidates for appointments. Physicians interested in psychiatry are invited to send in full biographical statements including personal data, education, training, experience and special desires, in order that this service may be of the greatest possible assistance to them.

Deans of medical schools, superintendents of hospitals, and directors of industrial organizations, clinics and others employing or participating in the training of psychiatric personnel, are invited to submit full information regarding available positions and courses, including financial details.

Foundations, universities and other agencies are asked to report pertinent fellowships in psychiatry, psychosomatic medicine and child guidance.

Inquiries should be addressed to Captain Forrest M. Harrison (MC) U. S. N., National Committee for Mental Hygiene, 1790 Broadway, New York City 19.

NOTICE TO MEMBERS.—Due to printing difficulties, it has been necessary to postpone the publication of the annual Membership List of The American Psychiatric Association until after the annual meeting which will be held in Chicago, May 27th-30th, 1946, inclusive, at the Palmer House Hotel. If you have any change of address, please forward it immediately to the offices of the Association, so that it might appear correctly in the new directory to come out this summer.

BOOK REVIEWS

THE NEW YORK HOSPITAL—A HISTORY OF THE PSYCHIATRIC SERVICE, 1771-1936. By *William Logie Russell, M.D.* (New York: Columbia University Press, 1945.)

The records and archives of our old medical institutions contain source material for many fascinating chapters in the history of psychiatry. It is from such documentation that Dr. Russell has pieced together and projected against the general march of psychiatric progress in America this absorbing account of one of our oldest mental services, the earliest in fact in the state of New York, antedating by fifty years the establishment of the first state hospital at Utica.

The New York Hospital was established under private benevolent auspices, with supplementary state aid, at a time when a new era in the approach to mental illness was imminent. The Society of the Hospital was chartered in 1771, and one of its prime objectives was to provide for the needs of the mentally ill. A number of years elapsed before the project laid down was finally implemented, but in 1791, a year prior to the advent of Pinel in France and Tuke in England, the doors of the Hospital were opened for the reception of medical, surgical, and mental patients.

The founders of the Hospital stressed at all times the concept of the "curability" of mental illness as well as an enlightened, humane administrative policy. The treatment of mental patients remained within the general medical service until 1808, when a separate department was established and a special 80-bed edifice was erected. Subsequent developments paralleled the march of psychiatric progress from the concept of "moral treatment" as distinct from medical treatment (Tuke) to the modern reintegration of psychiatry with other departments of medicine. In 1821 the mental service was removed from New York City to Bloomingdale, and the physical separation was increased in 1894 with a second removal to White Plains. The establishment in 1932 of the Payne Whitney Psychiatric Clinic completed a cycle as it reassigned psychiatry to its proper place among the resources for service, teaching and research of the New York Hospital.

In addition to its historical and intellectual interest, this record of a century and a half of public and private psychiatric care contains many practical lessons in the field of hospital management and administration. It is a scholarly piece of work, rather heavy-going at times, but withal rewarding to the student of psychiatry.

C. C. BURLINGAME, M.D.,
Institute of Living,
Hartford, Conn.

(NOTE: Dr. William L. Russell needs no introduction to American psychiatry. He is a Past-President of the American Psychiatric Association and, at present, is Professor of Psychiatry, Emeritus, Cornell University Medical College and Consulting Psychiatrist to the New York Hospital. From 1897-1937, he was Medical Director of the Society of the New York Hospital (Bloomingdale). Dr. Russell has exerted a profound influence upon psychiatric progress in North America.)

A MAN AGAINST TIME. *An heroic dream.* By *William Ellery Leonard.* (New York and London: D. Appleton-Century Co., Inc., 1945.)

The most besonnetted women in history were Petrarch's *Laura* and Ronsard's *Helene.* In each case the poet celebrated in deathless verse the charms of his mistress and his own hopeless love.

In the present case the lover was more fortunate. His work consists of a sequence of 67 sonnets addressed to the author's third wife, a former pupil and at the time of writing twenty-four years old while he was fifty-seven. Dr. Leonard died in 1944 at the age of sixty-eight; the sonnets therefore remained unpublished for ten years and have now appeared posthumously. Meanwhile the girl-wife of whom he had sung had divorced him after two years of married life and Dr. Leonard, as his fourth marital venture, had remarried his second wife, who between times had married and lost her husband.

The love story presented by these sonnets is unique: it is frankly autobiographical; it starkly anatomizes marriage; it contains references to the neurosis that dogged the author throughout his life.

William Ellery Leonard was for many years professor of English at the University of Wisconsin. During all this time a "distance phobia" had kept him a prisoner virtually within the limits of the campus. In 1927 he explained his infirmity in his autobiography, "The Locomotive God." He attributed it to an incident at the age of three when he was taken to a railway station to await a train, and was terrified by the approaching locomotive which seemed to be bearing down directly upon him. Years later, according to the report, the chance view of a picture of a locomotive that seemed to be "rushing at him" served to revive and reinforce the old fear. The dread of moving beyond the familiar paths between lodgings and classroom led to a life of almost complete self-imposed isolation.

From this thraldom the poet had hoped that the young wife who had brought springtime into his autumn years would help him to escape.

"I'm chained, I'm barred, I'm cowed by iron whips,
But you are young, are strong, are brave, are free . . . ."

And in another sonnet he laments:

"My kin all dead, my childless house a hall
Of spells and spectres deforming the windowed sun,
Friends few or far, and passing one by one,
My body yoked here like an ox in stall
By long disease. . . . ."

In more buoyant mood he could reckon with the spirit of his youthful bride—

"Almost to make me young again and free
To walk the far woods for the one last flower
Before the winter. . . . ."

Almost, but not quite! And then, in reaction, defying fate, he could cry out in the spirit of W. E. Henley writing the "Invictus" from his hospital bed.

"Though crippled, prisoned, white-haired, fifty-eight,
My world a heap of ashes, splinters, shards,
Until I die, by God, I'll stand up straight—
And when I die I want no flowers and cards."

The spirit of Leonard was essentially pagan (*absit invidia!*). He quarreled with the Christian system of reckoning time—

"How false man's calendar
Which splits old times from new by that lone star
At Bethlehem, of Hebrew shepherds seen."

He exalted neither the body nor the mind at the expense of the other; both claimed like tribute. And so he could celebrate the excellencies of his wife's body, "zone by zone," as well as those of her spirit, and with equal adoration. Like many another modern pagan he exclaims:

"The only gods at last are those of Greece!
For they alone are competent to save
Both soul and body. . . . ."

The last sonnet in the series—Leonard's final blessing bestowed upon his wife—deserves to be quoted entire:

"With most sound mind I make my testament:
To you, my all of what the sun and sea,
Mountain and thunder, flower and lake and tree
For fifty bold and thwarted years have meant;
To you, each unsung song, each high event
Imagined in my long captivity,—
The incorruptible deep self of me . . . .
To you, each unaccomplished merriment.
To you, that strength, when I am dead, to live,
As I still lived when one I loved had died;
That, out of what you are, and what I give
With love as sage attorney by my side,
You make another Love-song—line by line
Far overarching, like a rainbow, mine."

C. B. F.

KLINISCHE UND ERBBIOLOGISCHE UNTERSUCHUNGEN ÜBER DIE HEREDOTAXIEN, By *Torsten Sjögren*. (Copenhagen: Acta Psychiatrica et Neurologica, Supplementum XXVII, 1943.)

The author, already well known for his earlier valuable studies on the role of hereditary factors in the etiology of juvenile amaurotic idiocy and Huntington's chorea, continues here with a similar clinical and genetic investigation of the several hereditary ataxias.

The clinical part of the monograph (138 pages) describes the sources of the new, hitherto unpublished, material, the diagnosis and grouping of the cases, and gives in much detail the case histories, many of which had been followed up for decades. In the final 53 pages, (a) the family histories are presented, illustrated by 14 comprehensive family charts, and full data are supplied on distribution of 184 cases in 118 families, the enlarged family circles taking in a total of 3,111 persons, and (b) a characteristically thorough statistical and mendelian analysis is undertaken to demonstrate, if possible, the mode of inheritance followed in the different ataxias.

Of the cases investigated, 104 were "probands," appearing for diagnosis and treatment, mainly at clinics in Stockholm, Uppsala, Lund, Halsingborg and Gotenberg; 84 further cases were revealed in the families of the probands. Ataxias are rare in Sweden, but maps show the tendency for each kind to be concentrated in certain regions and parishes.

These cases were assembled in groups diagnosed as: I. Friedreich's ataxia (84 cases typical, and 17 cases atypical or questionable); II. a rather ill-defined mixed group of 12 isolated cases with cerebellar, or olivo-ponto-cerebellar atrophy, or multiple sclerosis, etc.; III. Pierre Marie's hereditary cerebellar ataxia (64 cases); and IV. Congenital, fragmentary heredo-ataxia (11 cases, too few to be analysed intensively). The differential diagnosis, particularly between groups I and III, is considered reasonably clear, "well founded." and suitable as a starting point for a genetic study. The diagnoses were made without aid of histopathological post-mortem materials, on the basis of the sequence of clinical symptoms, ataxia, tendon and plantar reflexes, speech affection, nystagmus, optic atrophy, mental deterioration, etc. As the diseases progressed, the syndromes tended to overlap; striking symptoms in advanced stages were progressive dementia in both Friedreich's and Marie's ataxia, and muscular atrophy in Friedreich's ataxia.

There was a slight, but probably not significant, excess of males over females affected. The mean age of onset for Friedreich's ataxia was 13 ± 0.7 years; for Marie's 34 ± 1.9 years, and for the second group, of 50 ± 2.3 years. A special point is made to show that two or more cases in any one family are extraordinarily similar in symptoms and age of onset, and that Friedreich's and Marie's ataxia did not both occur in any family.

In the genetic analysis especial attention was directed toward groups I and III, where the material supplied was most accurately diagnosed homogeneous, and large enough for an adequate study by family history and statistical methods. These two types of ataxia exhibit several distinctive and contrasting features.

Friedreich's ataxia is, "with a high degree of probability" inherited like a mono-hybrid recessive character, like albinism, for instance, where each

parent contributes a defective gene. It is fully consistent with this conclusion that all of the cases were born to normal parents, with no ancestral history of the disease. The parents were blood related in a high proportion of cases 19% being related in some degree, and 12% as closely as first cousins. The recurrence of cases, up to 6 in one family group, is of the "familial" type; the afflicted persons are related as brother-sister, cousins, or other collaterals, but not as parent and child. Among the sibs (brothers and sisters) of the affected person the mendelian expectation is 25% affected. It may help the reader to recall that working over the observed data is not the simple matter of addition and division it would be with a large experimental sibship in fruit flies or mice. In Sjogren's data it is necessary to take precaution to exclude persons too young to classify as normal or affected, and also to exclude the statistical errors, common in many researches a decade ago, arising from selection of cases, small families, etc. The methods of Weinberg, Bernstein, Lenz and Haldane, were designed to make the necessary corrections in sightly different ways. They all agree that the ratio of affected observed in these data lies between 24.9 and 29.8%, with a standard error of about 3%. The author's treatment is an excellent model to study and follow in such studies, for the calculations are shown step by step for the different methods.

Standing out in rather sharp contrast, Marie's ataxia is inherited as a simple dominant character, like Huntington's chorea, for instance, where only one parent need contribute a defective gene. Accordingly, both the family histories and the mendelian ratios are unlike those in Friedreich's ataxia. No instance was observed of consanguineous marriage in the parent of a patient. The family history is of the "hereditary" type, cases recurring regularly each generation without skipping. The afflicted are represented in each ancestral generation in these data, a patient having one parent, one grandparent, etc. afflicted, as far back as the line was traced and ancestors classified. Centering around each patient one expects to find (and does find, as Sjögren shows), other cases of the same disease in one of the parents, half of the sibs, and in half of the children (counting only those who have reached the age of manifestation). Among the sibs of a case, the mendelian expectaton is 50%, the observed ratio being from 47 to 49% by the most appropriate correction methods.

To evaluate the present contribution and get a clearer picture of the whole problem, the reader will find it essential to compare this monograph with another, not seen by the author, owing to the war situation, by Bell and Carmichael "On Hereditary Ataxia and Spastic Paraplegia" (Treasury of Human Inheritance, Vol. IV, Pt. III, London, 1939). These writers collected and published some 319 pedigrees from the literature and added further new ones. While the area of agreement between the Swedish and English work is extensive, it is obvious that the mode of inheritance is still not finally established. Since Friedreich in 1863 first described 6 cases of ataxia in 2 families, and Marie in 1893 described a further type, there has been little doubt that genetic factors were involved and that classification of clinical types is difficult. The chief bottleneck is that it is apparently not yet possible to attain a clear, definite and objective differential diagnosis and classification of the clinical types of ataxia. Is hereditary ataxia one entity? Are they two or several really distinct diseases, clinically and genetically, as Sjögren believes? Or (the view evidently favored by Bell and Carmichael) are they basically one genetically, with the diverse clinical types (for instance Friedreich's ataxia, spastic ataxia, and spastic paraplegia) all phenotypic variants in different family lines, and each exhibiting a "recessive form" of early onset, and a "dominant form," milder in symptoms and later in onset?

Whatever the answers, Sjögren's impressive data, his keen and painstaking analyses, and his clearly stated views, will contribute largely to the outcome.

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THE CLARKS. AN AMERICAN PHENOMENON. By *Willaim D. Mangam.* With an Introduction by Edward Alsworth Ross, Professor of Sociology, University of Wisconsin. (New York, Silver Bow Press, 1941.)

Professor Ross says: "To the student of current American society The Clarks—An American Phenomenon is a priceless social document." "It is not just another piece of muckraking, for it manifests no eagerness to tear aside a shimmering veil or pillory a character much in the public eye. Rather if is a specimen of what may prove to be a new kind of biography, animated by the same determination to find and fix the truth that drives the laboratory investigator." With this view there may possibly be some dissent.

The author had exceptional opportunity to study his subject "during thirty years of service as general business agent to one of the sons of the principal character." He has included "critical comment by leaders in several fields of service and thought. It is hoped that they may substantiate the author's sincere belief in the continuing human value of this material—the belief which moved him to undertake the task of recording the story of a place and a time and a family now passing into history." There are ten of these comments, nine being brief, from economists and others, but one of three and a half pages summarizes the book well.

The book treats of the rise of William Andrews Clark from a poor young miner to become one of the fifteen richest men in the world. This position was achieved in part by a lack of ethics, aided by a determination to achieve what he desired, as was shown by his attempts to become a United States Senator, which were finally successful.

The lives of his descendants are treated in the same narrative style and the reader is largely left to draw his conclusions from the facts as presented.

Without actual criticism except in rare instances these must be unflattering to say the least.

Certainly in no other country would it have been possible to attain wealth so quickly from natural resources, but the wealth so gained was used selfishly and no member of this family ever left funds to benefit mankind by research or for care of the sick or handicapped. The few small gifts which were made were entirely for selfish reasons.

The author seems to have done his task well, but the tale is not a pretty one.

W. R. D.

THE ATTENDANT'S GUIDE. By *Edith M. Stern.* (New York: The Commonwealth Fund, 1945. London: Humphry Milford, Oxford University Press.)

This small book will be welcomed both by the teaching staff of mental hospitals and the attendants for whom it is prepared. In a word, "The Attendant's Guide" deals with the interpersonal relationships of the attendant and his professional environment. This all important function is carried out without the use of technical language, yet the practical features are not masked by generalized officialese phrases. The subjects are well organized and covered in clear simple language. Positive recommendations are abundantly provided. Criticisms are direct yet accompanied by constructive suggestions.

The book has 104 pages, 3 parts and 22 chapters. It is paper bound, modest in price and singularly free from misprints. The author, Edith M. Stern, is well known to psychiatrists by her previous and successful "Mental Illness: A Guide for the Family."

This new book has an introduction by Samuel W. Hamilton, M. D., and the collaboration of other experts, duly acknowledged, is obvious in the soundness of the contents, but not in the author's style commented upon previously.

Part one has eleven chapters dealing with the general problems the attendant meets from his first day on duty, as well as those recurrent and continuous features of mental hospital life, sometimes described as "custodial care." For example, Chapter three, "Patients Are People;" and Chapter six, "What the Well-Dressed Patient Wears;" and Chapter nine, "Let's go for a walk." Part two deals with individual problems more particularly, and has eight chapters. Part three covers briefly the attendant's position as one of the hospital team, in recognizing or reporting illness, as well as conducting himself with insight as to his status and possible development.

From the attendant's point of view, the book is frank, encouraging, and provides useful outlets. To the administrators, there is little, and nothing of importance, to prevent the adoption of the book and its recommendations in any hospital. For all, it bridges the gaps that exist between procedure routines, rule books, texts on neurophysiology, and the ultimate subject of our and the attendant's interest, namely, the patient as a sick person.

No book is perfect or complete, and least of one dealing with even a small part of human relationships; however this reviewer recommends "The Attendant's Guide" as such without qualification, and is of the opinion that it should be available to every attendant caring for patients with mental disorder.

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THE PSYCHOLOGY OF DIET AND NUTRITION. By *Lowell S. Selling, M. D., and Mary A. S. Ferraro, M. S.* (New York: W. W. Norton & Co., 1945.)

This volume is the joint effort of a psychiatrist and a nutritionist. The material in it appears to be sound and the subject is covered well in rather general terms. No bibliography is supplied. Such topics as "Children's Feeding Problems," "Feeding Problems due to Psychological Maladjustments," and "Educating the Food Consumer" are discussed at length. The last mentioned chapter contains some very helpful material that is not commonly available. Little that is new is presented and it is evident that much more investigation is needed in many of the fields that are discussed. The book is designed for intelligent readers who have already some knowledge of psychiatry or nutrition.

ELIZABETH CHANT ROBERTSON, M. D.
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THE DOCTOR'S JOB. By *Carl Binger, M. D.* (New York: W. W. Norton & Co., 1945.)

This very good book well deserved the Norton Medical Award. The statement of the publishing company, "The publishers feel fortunate to be able to give the first Award to a book which so clearly demonstrates the spirit that inspires and sustains men of medicine in their work" is, *mirabile dictu*, a very honest statement of the case.

Dr. Binger presents the situation of the doctor clearly, honestly, and with a background of culture in other fields and real experience in medicine. The layman, I think, in reading this book will get a very reasonable, although necessarily curtailed, view of the strivings of medicine and of its practitioners.

It is not necessary for the reviewer to consider the various sections of the book. It deals with the background and changes, and thus the evolution of medicine. It takes into consideration such mundane matters as fees. It discusses the relationship of doctor and patient. It gives special emphasis to medicine, psychoanalysis, psychiatry and psychosomatic medicine, with lesser space to allergy, asthma, tuberculosis, and high blood pressure. It then deals with the larger aspects of the medical situation, the cure and control of disease, the achievements and the tasks ahead. It even considers the hospital and out-patient department and, before winding up with past, present and future, considers the stormy and controversial field of socialized medicine.

There are two omissions which irk me somewhat.

One is that very little is said about surgery, and especially am I bereft because nothing is said about the role of heredity and the necessity for the participation of the doctor in a eugenic program. It is obvious that if there is a constitutional basis to a good deal of the ills of mankind, mere cure of the individual case only pushes the problem of disease on to the next generation in increasing measure.

But I suppose it can be stated that no man's interests can encompass the total field of medicine. Whatever Dr. Binger discusses, he does so with modesty and clarity, and he leaves the lay reader, I think, with the idea that doctors are human, all too human, and yet that out of their work there is arising a better world, and that the profession often called "noble" is not so because of the nature and character of its practitioners, but because it has built up a tradition which gives an ethical climate to the doctor, which paradoxically makes him a better man than he is.

My own prejudices lead me to quarrel a little with certain statements that appear in the book. I think that psychiatry should have come before psychoanalysis in the discussion. I do not believe that Freud was a despised man. I do believe that he reached a degree of eminence and worship such as is accorded to few men in their life-time, even though he did have some enemies. I do not think the time is ripe for us to state that hypertension occurring in a woman around thirty is due to her repressed aggression, so that in a certain sense we encourage such ladies to arise and to throw brickbats and dishes in the fashion of the heroines of the comic strips. These are minor defects in a book generally excellent. And so I close with the statement that this book can be read as profitably by the doctor as by the layman.

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IN MEMORIAM

ROBERT DICK GILLESPIE

1897–1945

Robert Dick Gillespie was born in Glasgow, Scotland, on 15th December 1897 and died in London in November 1945 in his 48th year. His death came as a sad and tragic blow to all his friends and colleagues who had known and admired him. His life was all too short. While he had already made for himself a place of great distinction in British medicine yet if he had been spared he would have continued to do much brilliant work, would have formulated his ideas and would have inspired all those who came in contact with him.

His early education was at Hutcheson's Grammar School and the University of Glasgow from which in 1920 he graduated with many honours. From the first it was obvious that he would go far. All his fellow-students and teachers recognised his great ability, and I considered myself fortunate when the opportunity arose to appoint him as one of the assistant physicians on the staff of the Glasgow Royal Mental Hospital of which I was at that time physician superintendent. It was a pleasure to start him on his psychiatric career, to note his enthusiasm and quick insight, his humanitarian outlook, and his natural flair for psychiatric work. At staff meetings he presented his case material in a manner which held one's attention, and from the first he balanced the psychological with the physiological. It was this ability to pay attention to all the facts which contributed in later years to his great success as consultant and expert witness. Some of his earliest contributions were devoted to a study of fatigue and exhaustion both on an experimental and clinical basis and for this work he was awarded a gold medal for the degree of Doctor of Medicine, Glasgow University.

His interest in psychiatry was tremendously stimulated by his experience in the United States at the Phipps Clinic, Johns Hopkins Hospital, Baltimore, then under the distinguished leadership of Professor Adolf Meyer. He always appreciated and was grateful for the training he received there, and also for the great kindness and hospitality shown to him. During the present war when many of his former American colleagues were in this country Gillespie frequently told me how much he enjoyed offering them any help and hospitality he could so as to repay, even in some small way, the benefits which he felt had been conferred on him.

It was on his return from the United States in 1926 that I asked him to collaborate with me in writing a "Textbook of Psychiatry" which was first published in 1927. We had both been greatly impressed by the vitality of American psychiatry and while we took as our model Clouston's "Clinical Lectures" yet we believed that Meyer's formulation of nervous and mental illness in terms of psycho-biological reaction types provided an approach to prevention and treatment which merited the widest publicity. I would like to take this opportunity of stating how much I owe to Gillespie. He had a grand command of the English language and was never at a loss for the telling word or phrase which could make all the difference. Sometimes he would reproach me, in a humorous way and with his characteristic smile and laugh, because on one occasion I had suggested he might have too glib a pen. He felt greatly honoured when he was elected a Corresponding Member of The American Psychiatric Association.

Another training ground which marked a further period in his career was at the Cassel Hospital, Penshurst, Kent, then under the directorship of the late Dr. T. A. Ross. In that hospital, devoted to the treatment of the psycho-neuroses, Gillespie was very happy, and had full scope for his brilliant gifts of analysis and synthesis. It was, therefore, no great surprise when at the early age of 29 years he was asked to succeed the late Sir Maurice Craig as physician for psychological medicine, Guy's Hospital, and lecturer

in psychological medicine, Guy's Hospital Medical School. Then began years of ceaseless activity and fruitful effort which continued almost up to the day of his death. He inspired his students, he interested and stimulated his general medical colleagues, he developed a department of psychological medicine both for adults and children which culminated in the building and opening of the York Clinic, Guy's Hospital, the first psychiatric clinic in association with a general hospital in this country. Even while he was still engaged as Air Commodore in the Royal Air Force he had the energy and enthusiasm to see the project which was so dear to him come to fruition.

It is not too much to say that all who were associated with him, doctors, lawyers, lay people, valued his opinion, trusted his sincerity, and recognised that he was a man with outstanding gifts. His contributions to psychiatric literature always reached a high level not only in relation to their content but in the manner in which they were expressed. He greatly cherished and appreciated the honour bestowed on him in 1941 when he delivered the Salmon lectures. He recalled with great amusement how when he arrived in the United States he was interviewed by reporters and the following morning one enthusiastic reporter stated that Gillespie had accounted for an unmentionable number of German aeroplanes. He was particularly impressed by the use of the term "unmentionable."

Apart from his professional life he was a charming companion, a witty conversationalist, a man with an immense knowledge of general literature who remembered the good things he read. A commanding and impressive figure, a man who will be remembered for his intensity of purpose and integrity of soul.

He is survived by his wife and daughter.

D. K. HENDERSON, M.D.

HAROLD DEAN PALMER

1901–1945

A tower has fallen,
A star has set:
Alas, alas for Celin.

On November 20, 1945, two days before Thanksgiving Day, Harold Dean Palmer was whisked away from the bosom of his family and friends. He knew for some time that he had not long to live, but he refused to compromise with duty or conscience, and he chose to continue his work and life at a normal pace, when a let-down would have meant longer survival. Few knew the handicaps under which he proceeded in the last few years of his life, for he regarded complaint as undignified, and he exemplified the best features of Stoicism in contending with a fatal disease which held a daily threat of extinction. He died during the course of his practice, while he himself was caring for a patient. The end came quickly and without pain, but though he himself was prepared, his friends and family were not. Realization of the possibility of sudden and impending death failed to prepare them for his loss.

Harold Dean Palmer was born in Fairmount, Minnesota on June 12, 1901, the son of John Earl and Winifred Palmer. His father, a prominent lawyer, died in 1939; his mother and two brothers, Ray G. and John Marshall survive him. In 1929 he married Margaret A. Adams who with Margaret 14 and Harold 12, survive him.

He graduated from the University of Minnesota in 1924 receiving the degree of B. S. and in 1927 the degree of Doctor of Medicine from the same university. Following his graduation he interned at the Philadelphia General Hospital, where he came into contact with two outstanding men who influenced his life greatly, Dr. Charles W. Burr and Dr. Edward A. Strecker. It was through their example and influence that he decided to enter psychiatry, though he had not seriously considered doing so at the time of his internship. Because of the opportunities opened to him he remained in Philadelphia where he became a resident in psychiatry in the Pennsylvania Hospital for Nervous and Mental Disease (1929-1931), and later senior psychiatrist in the Institute of

the Pennsylvania Hospital and consultant to the department of nervous and mental disease of the Pennsylvania Hospital.

His recognition as a psychiatrist came readily both in Philadelphia and throughout the country. He was appointed visiting psychiatrist to the Philadelphia General Hospital and served as psychiatrist to the Woman's Hospital of Philadelphia and psychiatrist of the student health service of the University of Pennsylvania in 1932, all of which offices he filled to the date of his death. In 1941 he was appointed professor of psychiatry in the Woman's Medical College of Pennsylvania. In addition he was associate in psychiatry in the University of Pennsylvania. In 1943 he was appointed visiting professor of abnormal psychology in Princeton University, a position of which was justly proud, and one to which he devoted considerable energy at a time when conservation would have been much wiser than expenditure.

He served as president of the Philadelphia Psychiatric Society. He was a member of the American Psychiatric Association, the American Neurological Association, the American Medical Association, the College of Physicians, the American Association for the Advancement of Science, the Research Council on Alcoholism, and the Pennsylvania Psychiatric Society. In 1944 he was appointed a member of the American Board of Neurology and Psychiatry of which he was a diplomate.

He was the author of many articles on psychiatry and neurology, and is best known for his investigations of migraine. He had the vigor and originality for good clinical investigation, but he was occupied by an extensive practice which took so much of his time that he was not able to carry through many of the ideas which he passed on freely to others. He was editor of the section of neurology and psychiatry of Hughes's "Practice of Medicine." He was a member in the Medical Reserve of the United States Navy and confidently expected to take his place in the Medical Unit of the University of Pennsylvania at the outbreak of the war. His rejection for physical reason was one of the greatest disappointments of his life, but so well had he learned to govern himself that even those closest to him failed to fathom how deep was his disappointment at not serving his country in uniform. Even the training of naval medical officers in psychiatry, part of the duties which he assumed as a civilian, failed to console him.

He was an unusual psychiatrist. He had excellent background in formal psychiatry, in psychoanalysis and in neurology. He never sloughed his contact with organic nervous disease, with the result that he reflected a refreshing mixture of the organic and psychogenic in his approach to psychiatric problems. His background in internal medicine was never forgotten; his patients had the great advantage of an approach not only through psychiatry but through medicine itself. He represented a solid trend in psychiatry which had begun to influence a good many of his friends and associates and would undoubtedly have influenced more had he been spared longer.

So he has gone, leaving behind him a void and an emptiness of which all who worked with him are continuously aware. He labored hard and long, but for too brief a period. In the course of his short life he touched on many fields and came into contact with workers in many parts. He left his mark on all these, but it was those who knew him close to home who will miss him most. He was a model of industry, with a capacity for work which was often breath-taking. He drove himself hard, keeping long hours, defying fatigue and its ill-effects, and paying no heed to the warnings of his friends. No patient could have found a more selfless physician, or one more passionately devoted to finding cause or cure for those who came under his care. It was always a source of astonishment and inspiration in a discussion of his patients' problems to find to what lengths he had gone to obtain new drugs or to seek help of any sort which could benefit his patients. Like all good physicians, he never hesitated to confess when he was wrong or to seek help when he or those entrusted to his care needed it; and like all good physicians also, his seeking after help always had at its basis a sound reason, clearly crystallized, which reflected well the thought he had given to his problem.

His friendship was not easily gained. He knew and he was liked by many, but he revealed himself to very few, not because he was self-sufficient, but through shyness and

a distaste for leaning. He in turn liked people, and was readily trusted. He had quick insight into people and their problems, both intuitive and acquired by long experience with psychiatric problems and the theory of abnormal psychology. He was fond of people for whose problems he had great tolerance and understanding but he could be caustic in his appraisal without being malicious or vindictive.

Those of us who worked with and near him can still see him scurrying along the halls of the Institute or hurrying out for a late lunch; or we can see him through the open door of his office sitting at his desk busy with his papers after a hectic day, too occupied to be annoyed by interruption, yet almost asking for a breather in order to permit him to relax. At such times we can recall most clearly his hearty smile, his inimitable mimicry, his subdued clowning, and his receptive ear for a good story. At such times too there comes easily to mind his constant accessibility for consultation and advice, and the common sense and soundness of his judgments. He asked for little from his friends except a feeling of trust and dependability; when he had them nothing could shake his faithfulness.

Those of us who loved him may well pause to reflect what it was which bound him to us, what it was which we accepted so easily and which he gave so readily and in such abundance, but for so short a time. Possibly in this way we may be able to distil for ourselves some of the spirit which he exemplified, so that we may carry it on, each in our own fashion. Nothing would have surprised Harold more than to realize that there was in him some spirit which others might wish to emulate; yet nothing could have pleased him better. He lived quietly; he worked intensely and unobtrusively; he sought little; he gave profusely and earnestly; he slipped away silently and bravely. He cannot be replaced, but he has left for his friends memories abundant in love and esteem.

BERNARD J. ALPERS, M. D.

PETER BASSOE

1874-1945

With the death of Dr. Bassoe, November 5, 1945, the discipline of neurology and psychiatry lost one of its staunchest, most honored and most valuable representatives. Although the major interest of his professional career was organic neurology, he looked upon the field of nervous and mental disabilities as one; he did not believe in narrow specialization.

Dr. Bassoe's extraordinary command of the entire field was evidenced especially in the Year Book of Nervous and Mental Diseases (now the Year Book of Neurology, Psychiatry and Endocrinology) with which he was connected for a third of a century. After assisting Dr. Hugh Patrick for a number of years in editing this excellent review, he became sole editor in 1918 and continued to carry the load alone until 1930. Three years later a serious illness obliged him to entrust this task to other hands. Having been of his making so long a time, the Year Book stands as a literary monument to Dr. Bassoe.

Born and educated in Norway he came to the United States in 1893 and was graduated from the College of Physicians and Surgeons of the University of Illinois in 1897. An early interest in psychiatry was acquired during three years of state hospital work immediately following his general hospital interneship. This period was divided between the Mount Pleasant (Iowa) State Hospital and the Worcester (Mass.) State Hospital.

Dr. Bassoe joined the faculty of Rush Medical College in 1905 and retained this association until 1941. Soon he turned his attention mainly to neurology and in 1924 he became professor of neurology at Rush. From 1941 he was head of the department of neurology at the University of Illinois, within the last year becoming professor emeritus. He had also served as consultant and director of neurological services at several other hospitals in the Chicago area. His professional duties included the presidency of the American Neurological Asso-

ciation, the Chicago Neurological Society, the Chicago Pathological Society, the Institute of Medicine of Chicago and membership in numerous other medical bodies. He was an honorary member of the Medical Society of Norway and of the Medical Society of Sweden. He had also served as chairman of the section on nervous and mental diseases of the American Medical Association.

Among Dr. Bassoe's latest writings was his comprehensive survey, "The Psychiatric Facilities of Chicago and Surroundings," produced upon request in anticipation of the annual meeting of the American Psychiatric Association which was to have been held in Chicago last May. This contribution appeared in the March 1945 issue of this JOURNAL. In the May 1945 number of the JOURNAL was published his last paper, an important historical study, "Spain as the Cradle of Psychiatry."

It is worthy of note that the beginning and the end of Dr. Bassoe's professional life were marked by activity in psychiatry.

The words of the publishers of the 1934 Year Book of Neurology, Psychiatry and Endocrinology, announcing the retirement of Dr. Bassoe as editor, may be accepted as representing the sentiments of all his colleagues, students and friends. "Doctor Bassoe is known afar as one of the most beloved members of the profession of medicine in America. Self-effacing, loyal, kindly in manner, receptive to young talent, enthusiastic for progress wherever he recognized it as real, and tactful, never dogmatic, in chiding what he regards as pretension, always alert to a chance to be helpful, his character is one which quickly engenders affection."

C. B. F.